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FINANCING K-12 SCHOOLING IN ALBERTA

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EDUCATION

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FOREWORD

This financial digest is a compilation of summaries of a number of projects undertaken for Stage 1 of the "Financing K-12 Schooling in Alberta" study program.

Organizations and individuals which produced the original research projects are noted in the chapter headings for the individual projects.

The projects were conducted under the general supervision of the Finance and Legislation Committee of the Directors' Council of Alberta Education; and managed by Mr. W. Leigh Hill, Associate Director of Planning and Research, with the assistance of consultants from the Planning and Research Branch. These individual consultants are acknowledged below, along with several other Departmental staff who served on Steering Committees.

Financial Digest Project Editor: Linda M. Youell.

In addition to the various project contractors, the project management staff for the Stage 1 school finance studies thanks the following Alberta Education staff for their contributions to Steering Committees and in other tasks related to the studies; but who are not acknowledged in the text of the relevant chapters of the digest:

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CHAPTER I

PROGRAM OVERVIEW

I. INTRODUCTION

The tradition over the past decade in Alberta school finance has been to subject the multitude of funding arrangements at both the local and provincial levels to detailed examination approximately every three years, by a Task Force appointed by the Minister of Education. Different Minister's Advisory Committees on School Finance (MACSF)[1] were commissioned in 1969, 1972 and 1975. No formal exhaustive review was undertaken in 1978. Instead, the prime interest groups — The Alberta Teachers' Association (ATA) and the Alberta School Trustees Association (ASTA) — met with Alberta Education officials to discuss detailed concerns for the funding of education in Alberta.

As a result of these discussions, a number of new program items, e.g., Small Jurisdiction Grant (SJG), were recommended by the Minister of Education and the Department for inclusion in the 1979-80 departmental estimates, as part of the regular departmental budgeting process.

In anticipation of the appointment of a new MACSF in 1981, the Planning and Research Branch of Alberta Education proposed, in June 1979, a plan for the systematic two-stage review of school finance arrangements in Alberta. Titled, "Financing K-12 Schooling in Alberta: A Tentative Study Program", the plan was approved by the Minister of Education in October 1979, for implementation the following year.

Organized into two main parts — Stage 1: Data Support and Analysis; and Stage 2: Thematic Studies — the study program's objectives were to:

- enhance the Department's capacity to plan successfully;
- facilitate informed public discussion of issues in Alberta school finance;
- coincide with well-established and widely-accepted provincial school finance planning cycles.

Identified as possible issues for review under Stage 2 were supplementary requisitions and control mechanisms, special needs of some school students, types of provincial grants and their impacts on local school board decision-making.

This financial digest is a summary of the work completed in Stage 1 and indicates the principal arrangements for the just-commenced Stage 2 of the review.

II. PURPOSES

The purposes of Stage 1 were to:

- design new and better analytic techniques for exploring the probable consequences of selecting alternative provincial school finance plans;
- assemble basic information concerning selected aspects of school financing in Alberta, which can provide a fuller appreciation of the extent and precise nature of school finance problems.

These objectives and purposes anticipated further discussion relating to teaching positions, enrolments, revenues, curricular programs and other financial topics. The objectives and purposes are elaborated below.

A. Data Base Studies and Background Papers

This part of Stage 1 anticipates subsequent policy analysis and development. The prime objective is to facilitate any subsequent policy review by providing information of a nature and in a form which will enable the reviewer to make judgments about:

- the real purchasing power of school boards in regions of Alberta;

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[1] A glossary of educational terms and acronyms appears at the end of this report.

- the historical bases of the present Alberta school finance plan structure;
- the uniformity and fairness of current Alberta real property assessment practices;
- trends and patterns of change in Alberta school programs;
- the source and application of school system funds, past, present and probable future;
- the size and demographic characteristics of the future population of Alberta school children and their schooling needs;
- the characteristics of Alberta's teaching force.

B. Methodological Studies and Technical Papers

This part of Stage 1 develops new and improved analytic tools which can be used to examine:

- regional and year-to-year variations in the purchasing power of local school systems;
- the degree of "fiscal fairness" present in Alberta's school finance arrangements;
- the relative provincial-local shares of local school expenditures;
- differences in program offerings of local school systems;
- impact of different forms of grant aid on local spending and requisitioning decisions.

The research projects were conducted by both external contractors and Department staff.

After discussions with the researchers, some of the studies had to be reassessed; for example, difficulties were encountered with regionalizing and disaggregating the Educational Price Index (EPI) because of a paucity of retrievable and confirmable data, resulting in a shift in focus to reconstitute and validate the EPI for future use. One chapter in this Financial Digest therefore reports on both EPI projects.

In the original planning stages of this program, a project dealing with "Educational Specifications for an Alberta Foundation Program" was proposed, but was deemed too great in scope to be concluded in Stage 1. A brief description is included in the following text.

Each of the topics cited above is elaborated upon in the following chapters, including details of research methods, analyses and conclusions. Also, those readers deeply interested in any one particular aspect of school finance may borrow the relevant report from the Planning and Research Branch for further study.

III. ACCOMPLISHMENTS

The accomplishments through Stage 1 of "Financing K-12 Schooling in Alberta" are many. Most important, we now have a better understanding of the history, methodology and data from which we can make predictions about the implications of changes in school finance over the next decade. The Stage 1 research developed analytic tools for future use and assembled background information and data bases facilitating future research and analysis of Alberta school finance.

Specific outcomes include:

A. Alberta School Finance Developments

A history has been compiled, with special attention to the deliberations of the three previous MACSFs and the financial decision-making process.

B. Situation Reviews on Financing Schooling in Alberta

This study provides a history of teacher numbers and characteristics, enrolments, curricular trends, school board expenditures and revenues. One specific outcome was to refine the Early Childhood Services (ECS) data base to include ECS instructional staff in departmental certificated staff files.

C. Taxation and Assessment Issues in Educational Finance

This study provides a descriptive analysis of property assessments and taxes, with inter-provincial comparisons, and provides a list of supplementary requisitions and grants, with projections.

D. Fiscal Equalization Among Alberta School Systems

The financial history of school jurisdictions over the past 10 years has been filed in the University of Alberta computer and can be manipulated directly using the terminal hookup in the Planning and Research Branch.

E. Defining the Local Contribution to Local School Expenditures

Since the Government of Alberta levies a standard property tax on all "non-residential" property as a source of revenue for the School Foundation Program Fund (SFPF), local contribution can be defined to either include or exclude this amount. Depending on the description accepted, Alberta can be described as contributing a greater or smaller share of education costs. Since the Supplementary Requisition is most visible, public perception is that provincial shares have decreased.

F. **Education Price Index**

The province-wide reconstituted index measures year-to-year variations in the purchasing power of school jurisdictions. Additional to the overall index, the system provides subindices for the major functions or categories used in the province's Program Accounting Budget System (PAB). Establishment of regional price indices requires additional work at both theoretical and data gathering levels. A follow-up to the EPI study tested the new EPI system by obtaining 1979 and 1980 prices and calculating indices for these years on the 1978 = 100 base developed in Stage 1.

G. **Enrolment Projections System**

The testing and refinement of the Enrolment Projections System continues, in order that forecasters can predict reliably regional and jurisdictional level school enrolments, by age and grade, up to 10 years in the future.

H. **District Program Index:**
Scope and Depth of School Programs

This project developed a District Program Index which compares differences between and among school jurisdictions in the extent of curricular programs or subject areas offered at both the elementary and secondary schooling levels.

I. **School Finance Computer Model**

To date, format and programming for the model are completed, but the data file is incomplete. Completion of the data file, and testing, verification and validation of the model are anticipated by fall 1981. When finished, the model will enhance the Department's ability to predict impacts of changes in school funding formulae, at the school jurisdiction level, by school jurisdiction type, and for the province as a whole; and will be used in preparing financial summaries for provincial policy makers. Also, the Grants and Claims file statistics have been computerized and can be used as input to this school finance computer model.

IV. CONCLUSIONS

The conclusions or substantive findings of the various research projects are:

A. **Finances: Revenues and Expenditures**

1. For Alberta school boards over the period 1972-79, the proportion of total revenues obtained from SFPF declined markedly; the proportion of revenues obtained from the Supplementary Requisition increased markedly. (*Situation Reviews,* Ratsoy *et al.*)
2. Using the Supplementary Requisition as a measure of the local contribution to local school expenditures, for all school systems over the period 1969-79, there has been a persistent, marked increase in the relative local contribution to local school expenditures, ranging from a low of 10% in 1969 to a high of 24% in 1979. (*Defining the Local Contribution to Local School Expenditures,* Hill and Paige)

   Using the Supplementary Requisition plus prorated local SFPF levy proceeds as a measure of local contribution, for all school systems over the period 1969-79, there has been a slight decrease in the relative local contribution to local school expenditures, from a high of 44% in 1969 to a low of 29% in 1975.
3. Using the definition in "2", the greatest increase in relative local costs shares over the period was experienced by public school districts (over 2-1/2 times); the least, by divisions (1-3/4 times). (Hill and Paige)
4. Expenditures for transportation increased significantly as a proportion of total expenditures for city districts, while a proportionate decrease was the case for counties and divisions. (Ratsoy *et al.*)
5. In general, the Alberta Education Fiscal Equalization Grants, taken together, were found to be minimally equalizing on the basis of limited criteria used. However, some of these grants, such as DEG, appear inappropriately categorized under a general fiscal equalization label. (Ratsoy *et al.*)
6. A "turning point" year was 1975 because:
   - local education taxes, as a proportion of total education revenues, declined until 1975 and have risen somewhat since then;
   - prior to 1975, education taxes increased at a lower rate than personal income, housing and other prices, and other forms of taxation, but have increased at a higher rate since then. (*Taxation and Assessment Issues in Educational Finance,* Nichols)
7. Looking ahead to 1985 and education taxes in particular, Supplementary Requisitions are expected to rise at a higher rate than that of incomes and prices, and are expected to form a higher proportion of school board revenues, relative to the provincial con-

tribution from general revenues. The share of education taxes contributed by farm properties will decline, relative to residential, commercial and industrial properties. Irrespective of urban and rural growth rates, the urban share of education taxes will increase due to changes in assessment procedures. (Nichols)

8. Despite the higher local share of education taxes since 1975, the present residential education tax burden is low (less than 0.5% of urban residential market values.) (Nichols)

Net local property taxation for education (after rebates), as a proportion of total board revenues, ranges from a low of 18.8% in Manitoba to a high of 43.2% in British Columbia, with Alberta at 31.6%, when the four western provinces and Ontario are compared. (Nichols)

B. **Finances: Costs**

(*Disaggregating and Revising the Alberta Education Price Index,* Peat, Marwick and Partners)

1. When Alberta school jurisdictions are categorized as "large area" and "small area", there are significant differences in costs per pupil for transportation, and plant operation and maintenance.
2. There are significant cost per pupil differences in administration between city school jurisdictions and all other school jurisdictions, with the city schools' costs greater.

C. **Curricular Programs**

1. From 1970-80, in grades 10-12 the main additions to academic courses province-wide were in the areas of second languages, religious education and social sciences. There was also substantial revision to the industrial education curriculum. (Ratsoy *et al.*)
2. Major increases occurred in the number of students enroled in physical education, while rather substantial decreases occurred in Math 10 and 20, French 10 and 20, and Physics 10 and 20. (Ratsoy *et al.*)
3. For grades 7-9, there was little evidence of change in course offerings during the decade. (Ratsoy *et al.*)
4. Second languages and integration of environmental education into existing subjects were added to the grades 1-6 curriculum. (Ratsoy *et al.*)
5. Over the period, there seems to have been a shift away from curriculum development activities, toward activities relating to improvement of instruction.
6. The provincial data base for monitoring curriculum trends in Alberta is of mixed quality. For grades 10-12, the base is good and is being improved. At the junior high school level, the data are available from the computerized Form A only for the past three to four years. Data on elementary school courses are notably deficient. (Ratsoy *et al.*)
7. However, the data base for elementary programs is improving through filing of the new Form B program reports. Additionally, summary program reports at the jurisdictional level for all school grades enable computation of a provincial district program index. The first use of this reporting method has indicated substantial differences among Alberta school jurisdictions with regard to curricular program offerings at the senior high school level. (*Measuring Scope and Depth of Alberta School Programs,* Symyrozum)
8. Jurisdiction type is an important predictor of variations in program offerings among school jurisdictions at all three enrolment levels. Generally, public school districts, divisions and counties provide greater amounts of scheduled instructional time in major subject areas at all grade levels, than do separate school districts. (Symyrozum)

D. **Teacher/Class Data**

(Ratsoy *et al.*)

1. From 1975-79, there was a net increase of about 400 teaching positions across the province, resulting from a decrease of about 200 "regular" classroom teachers and an increase in specialty teachers, primarily special education and ECS. The urban/non-urban split is 60%/40% for educational staff in Alberta; 75% of staff are teachers, 15% hold combination teaching/administrative/support positions, and 10% hold administrative/support positions. Women comprise 56% of the educational staff, and 30% of the administrative/support staff. About half of all staff report that they spend 91% to 100% of their time in classroom teaching.
2. The student/staff ratio for all jurisdictions in 1979 was about 17.5, and was slightly higher in urban than in non-urban areas. When only teaching full-time equivalents (FTE) are considered, the ratio is about 21.5. (Non-urban jurisdictions are below 20, large urban are 21.8 and other urban are 22.8.) Class sizes follow these ratios, but are about one to two students above, except for some areas in the Calgary region, where the numbers are three or four and even more above.

3. Pupil/teacher ratios and class sizes have declined substantially over the decade.

E. **Pupil Enrolments**

1. A reduction of about 1% in the total provincial enrolment occurred between 1973 and 1979, due mainly to a decline in the four major urban districts; all other types of jurisdictions experienced increases or remained stable even though some individual districts within these types experienced enrolment declines. (Ratsoy *et al.*)

2. Total province-wide enrolments, 1980-89, are expected to increase by over 17%, to a total of 532,794. Most of that growth will be concentrated at the ECS (+37%) and elementary (+26.5%) levels, with modest growth at the junior high school level (+12.4%), and some slight decrease (–1.5%) at the senior high school level. (analysis by Mrs. Stella Johnson of *Enrolment Projections System,* Ellis)

3. Regionally, virtually all of the overall growth in enrolments will be concentrated in the Edmonton and Calgary metropolitan areas and in northeastern Alberta. (Johnson analysis)

F. **Relationship between Finance Plan and Education Plan**

The linkage between the nature of the educational services to be provided (the education plan) and how they are to be financed (the finance plan) is relatively clear in some elements of the School Grants Regulations (SGR); it is not now as clear as it was before the 1970s as far as SFPF is concerned. (*Alberta School Finance Developments,* Caldwell)

G. **Evaluation of Payments under the SGR**

The advantages of simplifying the SGR through devices such as "coalescing" into the SFPF will be difficult to demonstrate as long as SFPF is ill-defined as far as its relationship to an education plan is concerned. (Caldwell)

H. **Mechanisms for Planning**
(Caldwell)

1. The planning capability of Alberta Education was enhanced by decisions in the early 1970s to establish a Planning, Programming, Budgeting Evaluation System (PPBES) Project, and in 1975, the Planning and Research Branch. There was evidence that many problems, ill-defined in most cases, were not the subject of effective planning until these mechanisms became operational in the mid-1970s.

2. A continuing capability to assess the impact of school finance arrangements has not been achieved with the planning mechanisms which are currently in place. The decision to support the current series of studies is a new step because of attempts to get tools and data to carry forth the discussions (review).

3. The various MACSFs appear to have operated as "first order" planning groups. Despite the characterization of MACSF 1972 as a "policy-reaction" body, its deliberations were conducted within a framework of policy constraints. The Committees have been more involved with considerations for efficient planning than with policy development and recommendations. Given a planning rather than a policy orientation, the MACSF-type structure would appear to have some limitations from potential role conflicts between representatives from the ATA and ASTA, organizations which clearly have different interests on important aspects of school finance arrangements.

4. MACSF-type groups have had purposes other than those defined in their Terms of Reference, including providing the opportunity for interest groups to share their views in open meetings where interaction is possible, learn about the problems faced by Alberta Education, and acquire knowledge about school finance arrangements from other experts.

5. The clarification studies in Stage 1 of this program have served a variety of purposes including problem definition, impact analysis and evaluation.

V. IMPLICATIONS AND RECOMMENDATIONS

In addition to serving as the major background documents for a 1981 MACSF, the implications and recommendations of Stage 1 of *Financing K-12 Education in Alberta* for departmental action are:

A. **Finances: Revenues and Expenditures**

1. Explore alternative bases for differential funding, perhaps related to jurisdiction type, size or location. (Ratsoy *et al.*)

2. Develop better or more widely-accepted measures of "equity", or at least others in addition to assessment per pupil, such as personal income per pupil. (Ratsoy *et al.* and *Fiscal Equalization Among Alberta School Systems,* King and Hill)

3. Examine the impact of changes to provincial school finance arrangements on individual school jurisdictions, perhaps using a case study approach.

B. **Finances: Costs**

1. Examine and isolate the reasons (price or volume effect) for observed differences in cost per pupil in plant operation and maintenance, transportation, and administration among Alberta school jurisdictions. (Peat, Marwick)
2. Complete regionalization of the EPI. (Peat, Marwick)

C. **Curricular Programs**

Collect and maintain better information at the elementary level regarding scheduled (and actual?) instructional time by major subject areas. (Ratsoy *et al.* and Symyrozum)

D. **Teacher/Class Data**

Collect and maintain (probably through the Certificated Staff Record) better information concerning class sizes, staff numbers and characteristics, for all enrolment levels, with special attention to ECS. (Ratsoy *et al.*)

E. **Enrolments**

Continue improvements to the Enrolment Projections System to provide better jurisdiction-level and regional estimates of future school populations. (Ellis)

F. **Relationship between Finance Plan and Education Plan**

1. Explore the desirability of specifying an education plan which could form the basis of all forms of regulated funding. (Caldwell)
2. If specification of an educational plan is desirable, devise the processes which should be employed to determine the plan's components. (Caldwell)

G. **Simplification of SGR**

Determine whether or not action should be taken to further reduce the scope and complexity of the grants under SGR. (Caldwell)

H. **Mechanisms for Planning**

1. Identify the steps which should be taken to ensure that Alberta Education has a continuing capability to acquire information to assist in policy-making and planning as these affect school finance arrangements. (Caldwell)
2. Establish a MACSF-type study group, with these suggestions:

— The endeavor should have a policy as well as a technical or planning focus.

— The government may establish carefully specified Terms of Reference such as those for the 1975 MACSF.

— The data gathering phase should be intensive and broadly-based.

— Interest groups should have an opportunity to suggest the nature of studies which will provide the basis for further deliberations.

— A small select committee or task force may have the responsibility of determining the nature of studies, monitoring their implementation and finally, preparing recommendations in a manner consistent with the Terms of Reference.

— Consistent with a task force approach, membership in the group described above should be defined on the basis of experience and expertise in at least four areas: school finance, educational programs, planning focused on the relationship between finance and instruction, administration at the school system level.

— There should be an opportunity for interest groups to participate in every stage of the process, though they need not necessarily be represented on the select committee or task force.

— The activities set out above should be conducted within a clearly defined period of time.

— There should be opportunity for public reaction to the recommendations which follow from this process, but the time for public reaction should not be protracted, given the limitations with respect to public expertise in the area of school finance.

VI. PROGRESS TO DATE

A. Stage 1

This Financial Digest represents the completion of Stage 1 of "Financing K-12 Schooling in Alberta". The summaries of the reports prepared for Stage 1 are provided in this digest for basic understanding of the Stage 1 research. Although the summaries vary greatly in length, each of the nine studies is of equal importance when considered as part of the whole research process. Our summaries vary in the detail of some studies because of the differing natures of those studies. For example, research into computer modelling and forecasting techniques is difficult to summarize, since a "summary" would involve detailing the entire computer model and its development, whereas statements of educational and financial history and *status quo* are more easily summarized.

Therefore, the lengths of the individual chapters in this Financial Digest are not to be construed as a measure of the relative importance of each chapter to the overall survey.

B. **Stage 2**

In March 1981, the results of Stage 1 were reported to the Finance and Legislation Committee, the internal body of Alberta Education dealing with and generally supervising the financing of Stage 1 activities.

1. ACTION PLAN

An outline for an action plan for Stage 2 was presented which proposed that a Task Force, similar to the previous Minister's Advisory Committees on School Finance, be established to further investigate the issues raised by the Stage 1 reports. The Task Force itself would provide overall direction and guidance, with sub-groups or sub-committees struck to explore specific policy issues, or to steer the efforts of researchers commissioned to enquire into matters of a more technical nature.

2. TASK FORCE

On June 12, 1981, the Minister of Education, Hon. David King, announced the beginning of Stage 2 of "Financing K-12 Schooling in Alberta", with the appointment of the Task Force on Financing K-12 Schooling in Alberta.

The membership of the Task Force is:

Alberta Association of Municipal
Districts and Counties
Mr. Thomas Musgrove

Alberta Chamber of Commerce
to be named

Alberta Education
Associate Deputy Minister, Instruction Division
Dr. James Hrabi
Director of Early Childhood Services
Dr. Irving Hastings
Director of Field Services
Dr. Eugene Torgunrud
Director of Finance, Statistics and Legislation
Dr. William Duke

Alberta Federation of Home and School Associations
to be named

Alberta Federation of Labour
Ms. Pamela Kirkwood

Alberta Municipal Affairs
Mr. Thomas Forgrave

Alberta School Trustees Association
Mr. Philippe Gibeau
Mr. Raymond R. Clark

Alberta Teachers' Association
Dr. Charles Hyman

Alberta Treasury
Mrs. Lynne Duncan

Alberta Urban Municipalities Association
Mr. C. (Chuck) Knight

Association of Independent Schools
and Colleges of Alberta
Mr. Lee Hollaar

Conference of Alberta School Superintendents
Mr. Peter Bargen

Private Operators of Early Childhood Services
Ms. Bonnie Ladner

School Business Officials Association
Mr. Murray Lloyd

Public Representative
Mr. Harvey Bliss,
Vice-President, Finance
University of Calgary
former President, ASTA

3. MANDATE

The Minister defined the mandate of the Task Force:

a. to make recommendations to the Minister of Education with regard to improvements in the ways and means of funding K-12 schooling, the Task Force shall focus on issues surrounding education finance in Alberta today, with particular attention to:

— fiscal equalization and equity, as particularly regards regional differences in the cost of providing schooling, and the sharing of local school board costs;

- the locus of control, with regard to limits on local requisitions and modes of provincial funding;
- equity of school programs.

b. to consider alternatives to the current arrangements in Alberta for financing K-12 schooling, including alternatives to the present School Foundation Program Fund, and shall detail the strengths and weaknesses of each in terms of current Alberta arrangements.

c. with the exception of capital funding, to enquire into any matter or commission casual papers or studies concerning any matters which it may consider essential to the proper execution of its responsibilities. In other words, the Task Force essentially has *carte blanche* to have studies and research reports conducted on its behalf.

4. TERM

The term of the Task Force is from June 9, 1981 to December 31, 1982, at which time it is to make recommendations to the Minister of Education, with regard to improvements in the ways and means of funding K-12 schooling in Alberta.

Also, during the life of the Task Force, it is to report regularly to the Minister, through the transmittal of minutes of its meetings and other means as may be required.

An indication of the significance of this Task Force and the importance placed on it by the Minister of Education is the budget, which was established at $300,000, in addition to the extensive Stage 1 activities. With this financial backing, the Task Force will be able to commission such reports and research as it deems necessary.

As this report goes to press, the Task Force has held two meetings. Also, the first contract for Stage 2 activities has been let, in order to regionalize the Alberta EPI, as a followup to the activities discussed in Chapter Seven.

CHAPTER II

ALBERTA SCHOOL FINANCE DEVELOPMENTS, 1972 - 1980

Dr. Brian Caldwell
Department of Educational Administration,
The University of Alberta; Edmonton, Alberta; 1981

The chapter which follows is substantially abridged from the original study report by Dr. Caldwell. It consists of the main topical sections and a few of the detailed examples from the original study.

I. OUTLINE OF STUDY

A. Purpose

The purpose was defined as: A study tracing the evolution of the present-day Alberta school financial arrangements; from the work which culminated in the 1972 MACSF Report, to the current Foundation Program Fund and School Grants Regulations. The study would pay particular attention to the nature of and reasons for the more significant changes to grant systems or programs during that period, including the decision making process.

The Steering Committee for the study wanted particular attention given to the decision process. They viewed SFPF and grants under the provisions of SGR as the financial translation of government policy with respect to the funding of education in Alberta. Consequently, the decision making process was considered more broadly as the policy making process. Attention was thus focused on the desires, wants, needs and demands giving rise to the various issues (the "reasons for") which were ultimately settled (through a "decision making process") in the policies constituting the "significant changes" under investigation.

B. Framework for the Study

A framework related to the policy process serves three purposes:

1. to establish the context in which information generated in the study may be used by Alberta Education;
2. to guide the collection of information in the course of the investigation, and
3. to provide a basis for making general comments about the adequacy of the policy process. These purposes are illustrated in the elaboration of the systematic view of policy.

1. A SYSTEMATIC VIEW OF POLICY

Figure II.1 illustrates the systematic view of policy which has use in this study. It suggests that a variety of desires, wants, needs and demands are articulated in the operating environment of a policy making institution such as the Government of Alberta. The operating environment may be internal or external, with the latter consisting of a specific educational environment and a more general environment which affects all institutions. The environment is comprised of a number of "conditions", usually classified as technological, legal-governmental, demographic, economic, socio-cultural, and political.

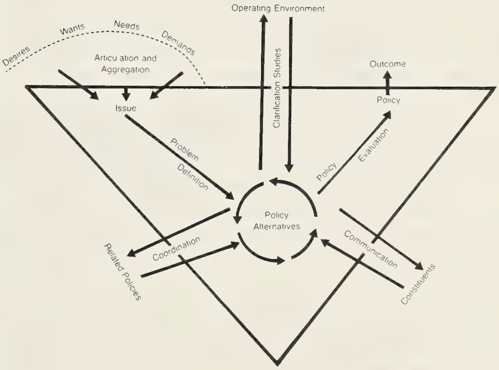

FIGURE II.1

A View of the Policy Process which has Utility in this Study
[Caldwell and Tymko, 1980:11]

A policy issue arises when the various desires, wants, needs and demands are articulated and aggregated to the point at which resolution is required. Such aggregation may take place internally or may result from the efforts of interest groups, such as the Alberta School Trustees Association (ASTA), Alberta Teachers' Association (ATA), or the Conference of Alberta School Superintendents (CASS). The policy issue is then the subject of some form of problem definition, often with the assistance of a study team or other structure established for that purpose.

The policy making process continues with consideration of one or more policy alternatives. These alternatives are generated and evaluated, with varying degrees of formality, in a process which may involve (a) some coordination with related policies, since a new or emerging policy should be consistent with or at least not incompatible with those already established; (b) communication with "constituents" both inside and outside the organization: those individuals and organizations having an interest or stake in the outcome of the process; and (c) conducting clarification studies to further define the problem or to assess the political or economic workability of the various alternatives.

The outcome of the process is a policy which has been evaluated, again with varying degrees of formality, in the light of information gathered in the manner outlined above. The criteria for adoption may be based on standard classifications of desirability, workability and acceptability.

It is acknowledged that the process described above may not always occur; some elements may be omitted while others may be the subject of brief, informal if not cursory attention. The process may not always occur in the sequence suggested by the above; indeed, several elements may occur simultaneously.

2. USING THE FRAMEWORK

The framework in Figure II.1 serves three purposes. First, it provides a context for this and other studies in the on-going process of policy making. This study may be viewed, for example, as contributing to "problem definition" in response to current issues in the finance of education in Alberta. Alternatively, it may be seen as contributing to an information base to be used in an examination of future policy alternatives — "coordination with existing related policies". Again, it may be considered a "clarification study" to the extent that it examines the policy process itself.

The second use of the framework is as a guide to the collection of information related to the policy making processes under consideration in this chapter. This information includes the nature of the "desires, wants, needs and demands" in each instance; identification of individuals and groups articulating the same; description of formal and informal structures/procedures resulting in the generation and evaluation of policy alternatives; the extent to which there was definition of the policy problem, coordination with related policies, communication with constituents and clarification study; the criteria which were used to select an alternative for subsequent adoption as policy and implementation through regulations.

The third use is related to judgments on the adequacy of the policy making process. If one assumes that all elements of the framework should be in evidence, especially those related to problem definition, coordination, communication, clarification and evaluation, then a basis exists for making some general comments about the adequacy of the process.

C. **Problems Examined**

The foregoing analysis of the nature and framework of the study allows a more detailed specification of its purposes, stated in question form as follows:

1. What have been the more significant changes in Alberta school finance arrangements in the period 1972-80?

   a. What components have been added to SFPF to achieve purposes not previously specified or implied in the regulations of the fund?

   b. What components have been removed from SFPF to the extent that purposes previously specified or implied in the regulations of the fund were no longer apparent?

   c. What grants or systems of grants have been instituted to achieve purposes not previously specified or implied in SGR?

   d. What grants or systems of grants have been discontinued to the extent that purposes previously specified or implied in SGR are no longer apparent?

2. What are the nature and purposes of each of the changes identified in "1" above?

   a. In what way did "new" practice differ from the "old" in each of the changes identified in "1"?

b. What were the intended outcomes or purposes of each of the changes identified in "1"?

3. What were the characteristics of the policy process which resulted in implementation of each change identified in "1" above?

a. What were the "desires, wants, needs and demands" giving rise to the policy issues in each instance?

b. Which individuals and groups articulated concerns of the kind specified in "3. a" above?

c. What formal and informal structures/processes were established to resolve the issues in each instance?

d. To what extent was there definition of the policy problem, coordination with existing related policies, communication with constituents and clarification study?

e. What criteria were used to select an alternative for subsequent adoption as policy and implementation through regulations?

f. In general terms, how adequate was the policy process which resulted in change?

D. **Research Methodology**

Information was gathered through an examination of related documents and interviews with persons having knowledge of the changes to school financial arrangements and of the associated decision processes.

QUESTION 1: What have been the more significant changes in Alberta school finance arrangements in the period 1972-80?

All regulations of SFPF and SGR from 1972-80 were examined to provide a picture of the way in which school finance arrangements have evolved during this period. Judgments were made by the researcher on those changes which could be classified as "the more significant". In addition, judgments were sought from officials in Alberta Education with major responsibilities in educational finance from 1972-80 as well as others in Alberta Education and other institutions/organizations identified by the Steering Committee as having knowledge of the changes in the period concerned. These interviewees were:

Alberta Education

Dr. James Hrabi
Associate Deputy Minister

Mr. Albert Bredo
Former Director
Finance and Legislation

Mr. Nick Chamchuk
Former Director
Communications

Dr. William Duke
Director
Finance, Statistics and Legislation

Mr. W. Leigh Hill
Associate Director
Planning and Research

Alberta Teachers' Association

Dr. B.T. Keeler
Executive Secretary

Dr. Charles Hyman
Executive Assistant

Alberta School Trustees Association

Dr. J. Lawrence Tymko
Director
Educational Services

Mr. Stanley Maertz
Former Executive Director

QUESTION 2: What are the nature and purposes of each of the changes identified in Question 1?

QUESTION 3: What were the characteristics of the policy processes which resulted in implementation of each change identified in Question 1?

In each instance, the nature of the change was identified in the various regulations. For many, the purposes of and reasons for the change were explicitly stated in documents summarizing school finance arrangements or in news releases and information bulletins which accompanied the announcement of the change. For others, these characteristics were gleaned from other documents which also constituted the major sources of information on the policy process. These documents included minutes, working documents and reports of MACSFs which reported in 1972 and 1975 (MACSF 1972 and MACSF 1975); similar documents associated with the various "in house" finance committees; news releases and information bulletins of the Communications Branch; Ministerial speeches and statements; briefs to the Minister; dissertations and selected documents related to particular changes.

Interviews were used to supplement the review of documents, with additional information and background provided by each person listed above as well as:

Government of Alberta

Hon. David King Minister of Education 1979 to present	Hon. Louis D. Hyndman Minister of Education 1971-75

Conference of Alberta School Superintendents

Mr. Dennis Grant President	Dr. Jack Van Tighem Executive Secretary

II. CHANGES IN SCHOOL FINANCE ARRANGEMENTS, 1972-1980

This section contains an overview of changes to school finance arrangements in Alberta during the period 1972-1980. A review of all changes of significance is followed by a listing of those which may be considered "the more significant"; the latter category is based in part on the opinions of those interviewed in the study. The chapter concludes with a statement of the nature and purpose of (reasons for) each of these changes.

A. Evolution

A review of regulations furnished a picture of the way in which school finance arrangements have evolved in this province during the period under consideration. Excluded were changes which were simply upward adjustments of existing grants or components of grants.

1. SCHOOL FOUNDATION PROGRAM FUND

The central features of the various changes are shown in Figure II.2. The significant changes with respect to SFPF were in the instructional component: the allocation of money on a per pupil basis from 1973, in contrast to the previous reliance on classroom unit and support staff grants, and the narrowing of the range of weighting factors for grades 1-6, 7-9 and 10-12. Other changes of significance were amendments to transportation grants which saw the introduction in 1976 of per diem payments with numbers of students transported and, in other years, a variety of provisions for the transportation of handicapped children. A significant change in the debt retirement and capital expenditure component was the introduction in 1974 of the Building Quality Restoration Program. The administration component has remained unchanged throughout the period at 3% of the sum of grants for instruction and transportation.

2. SCHOOL GRANTS REGULATIONS

The evolution of payments under the provisions of the SGR was considered within a framework which defined the broad purpose of the various types of grants. Those in place at the beginning of the period under consideration and those which have been implemented since may be classified according to the categories: Support of Special Programs, Differentiation of Support, and Ancillary Grants, Support of Private Schools and Others. (Figure II.3)

In general terms, the number of discrete programs which fall under the SGR provision has increased substantially; in 1980 there were 24 grants compared to 10 in 1972, with four introduced but discontinued in the intervening years. Of note are the increases in the numbers of grants in support of programs (from three to nine) and for differentiation of support (from two to nine).

B. More Significant Changes

The list of "more significant changes" was based on the judgment of the researcher in the light of opinions expressed by the interviewees.

1. IN GENERAL TERMS

A pattern of allocation changed from one which relied almost exclusively on the SFPF to distribute money equally to one which placed increasing emphasis on the SGR to distribute money differentially.

2. WITHIN THE SCHOOL FOUNDATION PROGRAM FUND

The change from distributing money in the instructional component on the basis of the classroom unit (CRU) and support staff grants (SSG) to per pupil grants.

Narrowing the range of weighting factors among the per pupil grants in the instructional component for grades 1-6, 7-9 and 10-12.

3. AMONG THE SCHOOL GRANTS REGULATIONS

Support for new programs in the form of grants for Early Childhood Services (ECS), Educational Opportunities Fund (EOF), and Learning Disabilities Fund (LDF).

The expanded level of support for existing programs in Special Education.

The expanded level of support for private schools.

Differentiation of support through the introduction of grants for Small School Assistance (SSAG), Sup-

FIGURE II.2

Evolution of School Foundation Program Fund 1972-80[1]

Year of Change	Instruction[2]	Transportation	Debt Retirement and Capital Expenditure
"Initial Conditions" in 1972	CRU and SSG with "truncation" of remainders; E = 1.00, J = 1.20 and S = 1.80	*Rural* based on cost in last 3 years, *urban* based on per pupil travel in excess of 1½ miles; depreciation; lesser of 90% of cost or grant specified.	Principal and interest for debentures and capital loans approved by School Buildings Branch
1973	Change from CRU and SSG to PPG with E = 1.00, J = 1.16 and S = 1.70	Rural entitlement on basis of that received in 1971 rather than on costs in last three years	
1974		Rural entitlement includes transportation of handicapped children	Addition of Building Quality Restoration Program
1975		Additional per bus allowance for rural; smaller distances for Grades 1-6 and provision for support of non-residents for urban	
1976	Specification of age range equivalents	For rural, per diem grants with allowance for non-usage and mileage, load factors	Support for interest in excess of 8% on debentures of 10 years or more, issued on or after January 1, 1974 for projects not covered by above.
1979	Differentials narrowing to E = 1.00, J = 1.05, S = 1.20	For rural, grant for bus modification for handicapped children, specifications for weekend usage	As for 1976, except for interest in excess of 9% and for debentures issued on or after May 1, 1980
1980			

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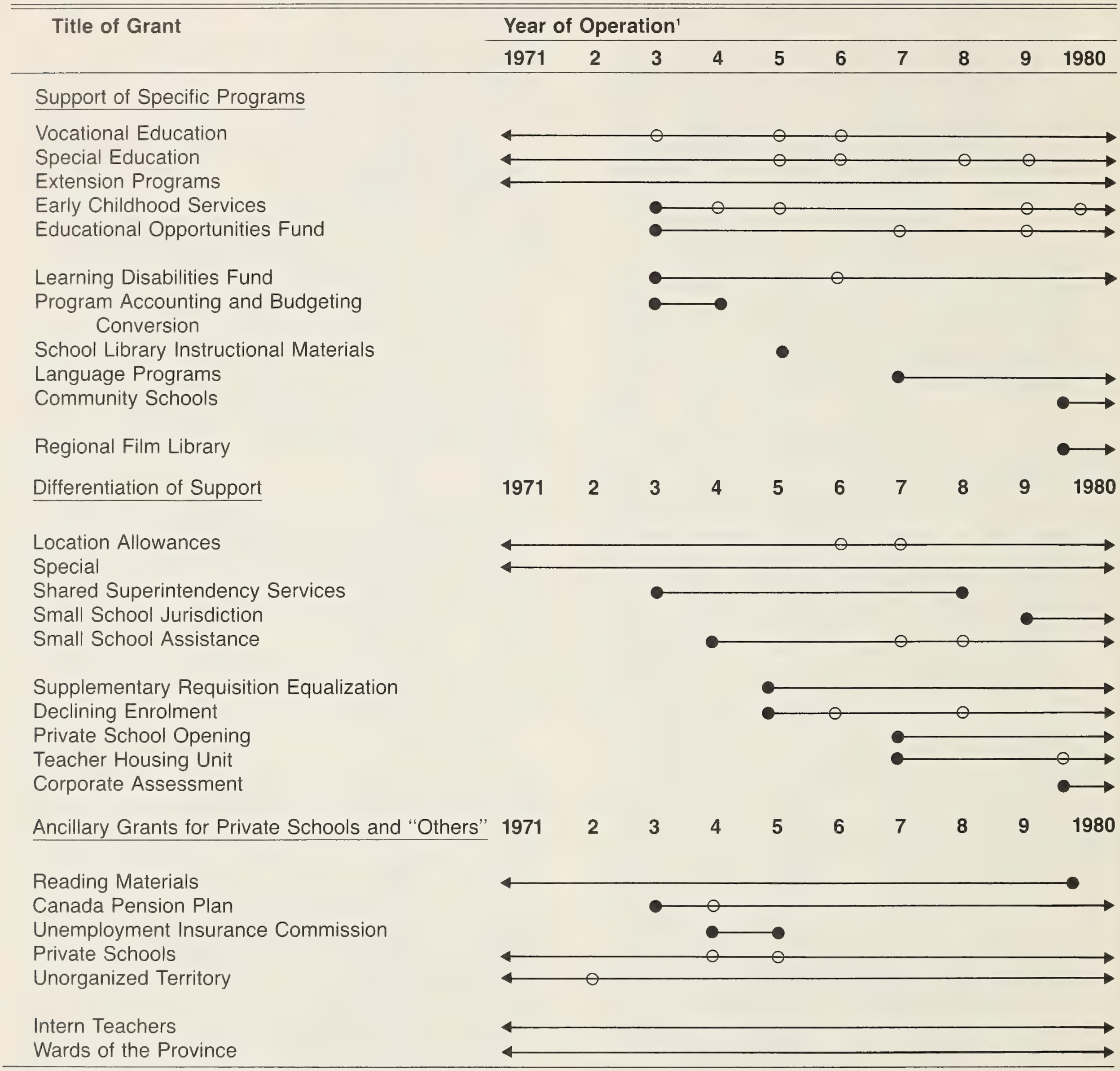
[1] No change in Administration component: 3% of [Instruction + Transportation]

[2] CRU = Classroom Unit Grant; SSG = Support Staff Grant; PPG = Per Pupil Grant. Differentials: E = grades 1-6; J = grades 7-9; S = grades 10-12.

FIGURE II.3

Evolution of Grants under School Grants Regulations



[1] ●Signifies year of introduction or termination of grant.

⊖Signifies a change in the number and/or nature of the components of a particular grant. Such a change does not include changes in amounts specified in existing components such as an upward adjustment in per pupil allocations.

plementary Requisition Equalization (SREG), Declining Enrolment (DEG), Shared Superintendency Services/Small School Jurisdiction (SSJG), and Corporate Assessment (CAG).

III. STRUCTURES FOR DECISION MAKING

The legislative process is seen as one wherein, over time, the roles of the Minister, interest/referent groups, the public-at-large, and personnel within Alberta Education have had important roles to play. The researcher views the In-House Finance Committee, 1972-76, and the Finance and Legislation Committee, 1976-80, as in-house groups with a high degree of influence. Additionally, the researcher found that the Planning and Research Branch, while providing valuable support service, exerts a strong influence through the expertise of some personnel with wide experience in school finance.

The researcher reviewed the activities of MACSFs which met in 1969, 1972 and 1975 and found a trend to an increasing concern with equality of opportunity through "differential support", increasing use of internal and external studies as a data base for deliberations, and a concern for a technical rather than a policy focus in deliberations.

The increasing involvement and effectiveness of interest/referent groups was also examined with attention given to the view that the current government is responsive to all groups with an interest in education and that Members of the Legislative Assembly are a powerful source of influence in the process.

The Minister currently meets routinely with representatives of ATA, ASTA, CASS, Alberta Federation of Home and School, Alberta Catholic School Trustees Association, School Business Officials of Alberta, Chamber of Commerce, and Alberta Federation of Labour. Meetings are held with other groups from time to time, for example, French Canadian Association of Alberta and Ukrainian Businessmen's Association. Submissions by these groups invariably have financial implications.

Groups of the kind under consideration also have an opportunity to influence the Minister through the submission of briefs, which organizations such as ATA and ASTA do regularly. A review of briefs submitted over the period of this study indicates a wide range of sources and issues.

Ministers of Education have also established a tradition of participating in key events around the province where "interests, needs, wants and demands" may be expressed. For example, the Minister of Education customarily speaks to delegates to the ASTA Annual Convention and the Annual Conference of Trustees in Banff.

A number of interviewees referred to the substantial role played by MLAs in determining the direction of school finance arrangements in Alberta. One interviewee felt that the extent of this influence may be stronger in education than in other areas of government activity because it is a field that everyone feels he knows something about.

Members of the Legislative Assembly may channel their involvement in at least two ways: directly to the Minister, and through the Caucus Committee on Education. An example of the first line of influence in the area of school finance is that which preceded an expansion of the Private Schools Grant following representations from groups representing the interests of private schools. Influence may be exerted through rather complex channels. For example, the brief prepared by the Calgary Board of Education following the publication of the MACSF 1975 Report was submitted to MLAs from Calgary, including the Premier, who raised a number of questions. These questions were forwarded to the Minister of Education who requested, in turn, a response from officials in Alberta Education. The questions were considered by Directors' Council with the response being forwarded to the Premier through the Minister of Education.

Contrasting perspectives were given by several interviewees in the study. Some felt the trend to increased involvement and influence was a positive development; government makes policy and it must be open to every group with an interest in education. In this respect, Alberta Education itself was seen as just one interest group in the policy process. An interviewee from a referent group saw government action as not beholden to any interest group when it comes to influence on policy. There was evidence of a degree of frustration with this approach, particularly as to the best way to "tap in" to the procedure.

This overview of decision making structures, both in-house and on a broader level, set the stage for an analysis of the decision process underlying the more significant changes in school finance arrangements from 1972 to 1980.

IV. THE MORE SIGNIFICANT CHANGES: CASE STUDIES IN POLICY-MAKING

A. Overview

The complete report from the researcher uses case studies of changes in school finance arrangements, in the following areas:

1. In the instructional component of SFPF, the allocation of money on a per pupil basis from 1973, in contrast to the previous reliance on classroom unit (CRU) and support staff grants (SSG).
2. In the instructional component of SFPF, the narrowing of the range of weighting factors for grades 1-6, 7-9 and 10-12.
3. Under SGR, support for new programs in the form of grants for Early Childhood Services (ECS), Educational Opportunities Fund (EOF), and Learning Disabilities Fund (LDF).
4. Under SGR, the expanded level of support for private schools.
5. Under SGR, the expanded level of support for existing programs in Special Education.
6. Under SGR, support for fiscal equalization through the introduction of grants for Small School Assistance (SSAG), Supplementary Requisition Equalization (SREG), Declining Enrolment (DEG), Shared Superintendency/Small School Jurisdiction (SSJG), and Corporate Assessment (CAG).

No particular attention is given to the change which generally encompasses all of those listed above, namely a pattern of allocation which changed from one which relied almost exclusively on SFPF to distribute money equally to one which placed increasing emphasis on SGR to distribute money differentially.

Analysis in this section is organized along the lines suggested in Section I:

Interests: What were the "desires, wants, needs and demands" giving rise to the policy issue?

Articulation: Which individuals and groups articulated concerns of the kind specified above?

Structures and Processes: What formal and informal structures/processes were established to resolve the issues?

Analysis: To what extent was there definition of the policy problem, coordination with existing related policies, communication with constituents and clarification study?

Decision: What criteria were used to select an alternative for subsequent adoption as policy and implementation through regulations?

Adequacy: In general terms, how adequate was the policy process which resulted in change?

The following is an example of the type of case study produced by the researcher.

B. Sample Case Study

The Case Study of Increased Support for Private Schools

The chronology in Table II.1 provides information about the evolution of provincial support for private schools. The uniform per pupil grants from 1968 to 1973 were replaced in 1974 by differential rates on a per pupil basis for grades 1-6, 7-9, 10-12. From 1974 to 1980, these grants escalated from an initial 33-1/3% of SFPF grant to public systems to 65% in 1980.

Information in this section has been drawn extensively from the doctoral dissertation by Leroy V. Sloan entitled, "A Policy Analysis of Legislation Permitting Public-Private School Agreements for the Provision of Educational Services". The purpose of Sloan's study was to conduct a policy analysis of that portion of Bill 43, a 1975 amendment to Section 160 of *The Alberta School Act,* which provided that, "A board with the prior approval of the Minister may enter into an agreement with . . . the operator of a private school for the provision of educational services." The events which were the subject of analysis by Sloan were the same as those which prevailed during the period in which government policy moved in the direction under consideration in this study. Furthermore, Sloan extended his analysis of the evolution of school finance arrangements until 1980.

1. INTERESTS

Sloan found that the "needs, interests, wants and demands" were articulated by ATA, ASTA, Association of Independent Schools and Colleges of Alberta (AISCA), and the Edmonton Society for Christian Education (ESCE).

The ATA stated its position in regard to public support for private education in the form of a policy resolution (Policy Resolution 7.A.8 passed 1967 and

TABLE II.1

Maximum Per Pupil Grants Available to
Alberta Private Schools, 1968-80[1]

Year	Type of Pupil			Per Pupil Grant as % of SFPF Grant to Public
	Elementary	Junior High	Senior High	
1968	100	100	100	N/A
1969	100	100	100	N/A
1970	100	100	100	N/A
1971	150	150	150	N/A
1972	160	160	160	N/A
1973	172	172	172	N/A
1974	207	238	332	33⅓
1975	246	271	370	33⅓
1976	335	368	469	40
1977	469	515	610	50
1978	577	605	693 ($28/cr.)	55
1979	682	715	818 ($32/cr.)	60
1980	807	846	969 ($38.75/cr.)	65

[1] From "Short Chronology of Government Support for Programs under the Purview of Alberta Education Covering Twenty-Five Years, 1954 to 1979." Unpublished Paper, Directorate of Special Education Services. Cited by Sloan (1980:62).

affirmed in 1970, 1975): "The Alberta Teachers' Association is opposed to the expenditure of public funds for either direct or indirect support of private schools which duplicate educational services offered by public or separate school districts."

The ASTA took a similar position to that of ATA (ASTA Members' Handbook, 1978 Education Policy Statement, 4.C.29): "The ASTA does not support the principle of financial grants from the general revenue of the province to private schools which, being private, operate outside the jurisdiction of the public system."

The position of AISCA was clearly stated in its Education Manifesto of 1973: "[We] therefore respectfully request the Government of the Province of Alberta to effect the necessary legislation to provide: (a) legal status to independent schools comparable to that enjoyed by public and separate schools, and (b) public grants in support of the education of each child in the province, the grant to follow the child to the school of the parents' choice, whether public, separate or independent."

ESCE, the largest member of AISCA in terms of students served, communicated its interests in a brief to the Minister in 1976. The main recommendation was that the government raise the level of financial support for private schools from 40% to 80% of the per pupil SFPF grant. A letter to the Minister of Education on November 17, 1976 indicated that if budgetary restrictions made such an increase impossible in the course of the year, the government should declare this to be its target figure reached over a two or three year period.

2. ARTICULATION

The manner in which these interests were articulated along with the response of the government and Alberta Education personnel was summarized by Sloan (1980: 165-167). He found that the official ATA, ASTA and AISCA positions were communicated through membership on the 1971 Ad Hoc Committee to Examine the Status of Private Schools in Alberta and the 1973 Advisory Committee on Private Schools and Colleges, and regular meetings with the Minister. The ATA's position and concerns were also communicated through correspondence with the Department. The ASTA, though less adamant, reinforced the ATA position. The AISCA also communicated its position directly through audiences with and briefs to the Minister and MLAs. Letter writing campaigns organized by the AISCA and regular correspondence from the AISCA president to the Minister further helped keep the Association's position before the policymakers. Direct attempts were also made by the Association to cultivate a favorable climate among MLAs toward independent schools. Actions included personal contacts, special meetings, and invitations to MLAs to make presentations to gatherings of AISCA.

The ESCE's input focused on attempts to implement the "umbrella concept" (described below). The active lobbying of the group included personal contacts with MLAs, active political support of specific MLAs, invitations to MLAs to address ESCE meetings, direct contacts with Alberta Education officials, and the preparation of various position papers. They were effective in their lobbying of MLAs and gained the support of all three MLAs in whose constituencies the majority of ESCE supporters reside.

The aim of the ESCE's actions was to appeal to the policymakers regarding the justness of their position and the implications of their support.

The ATA and ASTA generally possessed more potential influence than the AISCA and ESCE; however, the independent school supporters appeared to exhibit a greater degree of manifest influence than did the other two groups, on this issue.

The Department officials did not appear to support the AISCA and ESCE interpretation of the umbrella concept, perhaps because of the Department's role in administering the existing legislation. In addition, most Department personnel had not worked in a private school setting and might not be especially sympathetic to arguments favorable to private schools.

The Minister and many MLAs felt that private schools should continue to exist in the province. At the same time, however, the Minister also recognized that the government had a prior commitment to the maintenance of a universal free public education system in the province in the interest of democracy. One "goodness standard" used, therefore, by the Minister was that any decision must provide the greatest good for the greatest number. Also, the public system should become more flexible and should include a much higher degree of parental input.

The Minister recognized that the continuation of most private schools in the province was contingent upon increased governmental financial support and that at the time private school supporters were burdened with double taxation. He was committed to removing this burden.

The means by which the Minister chose to address the financial problems faced by the private schools and his perceived need of increased flexibility/choice and parental input in the public system was the umbrella concept. This concept, he felt, provided for increased flexibility while reducing ATA and ASTA opposition. Through this provision, private schools could gain associate membership in a public system, thereby acquiring increased financial assistance. In return, such schools would have to be open to all students who chose to attend and would have to follow the provincial curriculum in addition to the particular goals of the school. It would appear that the umbrella concept was a compromise between the two groups in caucus, one which favored substantial government support for private education and one which opposed such action.

Sloan traced the continuing influence of AISCA and ESCE until 1980, including the statement of the government's goal with respect to the funding of private schools. Hon. Julian Koziak, then minister of Education, indicated in the Legislature on April 26, 1978 that "I would see the private schools in the category one funded at perhaps 80% of the school foundation program fund . . ." (Alberta Hansard, April 26, 1978: 845).

3. STRUCTURES/PROCESSES

The means by which interests were articulated were indicated in the section above. In general, Sloan concluded that, although both bureaucratic and political channels of communication were used, those who supported public aid to private education used political channels to a much greater extent than did those opposed to such aid.

4. ANALYSIS/DECISION

The manner in which the policy problem was defined for/by the government and the manner in which it was coordinated with existing related policies is best illustrated by reference to the detailed criteria used by the Minister in forming policy on private schools. Sloan recorded these as, (a) the continued existence of private schools, (b) increased financial support to the extent that "double taxation" would be eliminated, (c) maintaining the diversity and flexibility of private schools, (d) establishing minimum standards that private school operators should meet, (e) ensuring the policy is politically feasible with respect to the positions of ATA, ASTA, and addresses the concerns of AISCA, (f) maintaining the philosophical and operational integrity of private schools.

The constraints noted by the Minister, especially with respect to the establishment of "umbrella schools" were that policy should not (a) weaken the public system, (b) exploit the public, (c) duplicate services, or (d) increase the already large amount of unused space in public schools.

Sloan's analysis suggests that communication with constituents representing the interests of both public and private schools was extensive and frequent. While no formal "clarification studies" were undertaken, it would appear that the government had access to all the information required for its decision.

5. ADEQUACY

Given the criteria outlined above and the conflicting demands made on government by AISCA and ESCE on the one hand and ATA and ASTA on the other, the process followed by the government to develop policy with respect to increasing support of private schools would appear to be adequate.

V. SUMMARY AND CONCLUSIONS

A. Factors Promoting or Supporting More Significant Change

The view of the policy process outlined in Section I suggested that a variety of desires, wants, needs and demands is articulated in the operating environment of a policy making institution such as the Government of Alberta. The operating environment may be internal or external, with the latter consisting of a specific education environment and a more general environment which affects all institutions. The environment is comprised of a number of "conditions" usually classified as technological, legal-governmental demographic, economic, socio-cultural, and political. For the purposes of this study, these conditions are defined as follows:

1. TECHNOLOGICAL

Conditions associated with the knowledge, skills, practices or techniques for accomplishing a task.

2. LEGAL-GOVERNMENTAL

Conditions arising from laws and regulations as well as from the judgments of courts which interpret those laws and regulations.

3. DEMOGRAPHIC

The physical conditions of groups and organizations — school systems, municipal governments — with whom the Government of Alberta, including Alberta Education, is associated.

4. ECONOMIC

Conditions associated with the economy of the nation, the province or a region within the province.

5. SOCIO-CULTURAL

Conditions which reflect the views, beliefs, norms and behaviors of society or groups within society.

6. POLITICAL

Conditions arising from the demands made on government.

B. Significant Changes

The researcher assumed that conditions of the kind indicated above promote or support policy which is reflected in the regulations which define school finance arrangements in Alberta. Specific findings are:

1. MOVE TO PER PUPIL GRANT IN SFPF

Demographic, economic and political conditions appear to have shaped the change to per pupil grants in SFPF rather than maintain the previous practice of CRU and SSG payments. Demographic conditions are reflected in the clear plight of small school systems for whom the "truncation" feature of the previous plan was a hardship. An associated economic factor which magnified the hardship was the relatively low assessment per pupil in many small jurisdictions. Political conditions were reflected in the need seen by government to change the grant structure to one assumed to be more easily understood by the public.

2. NARROWING THE RANGE OF WEIGHTING FACTORS IN SFPF

Economic, socio-cultural and political conditions were associated with the change which resulted in a narrowing of the range of weighting factors in SFPF. Economic factors were associated with the recognition that costs of providing education at the elementary, junior high and senior high school levels were narrowing, largely because salary differentials for teachers at the different levels were becoming smaller. A socio-cultural factor was the emerging view that greater attention should be given to the earlier years of schooling. This last factor was clearly recognized by the government which adopted a position of supporting change in this direction at the outset.

3. SUPPORT OF SPECIAL PROGRAMS: ECS, EOF AND LDF

The new finance arrangements to support programs in ECS, EOF and LDF were influenced primarily by socio-cultural and political conditions. As noted above, an emerging and powerful view in Alberta in the early 1970s was that greater attention should be given to the early years of schooling as well as to providing assistance to those with learning disabilities. In both instances, the government made clear its intention to support such change. An additional political condition was the need felt by the government at the time to establish support for these programs in a highly visible manner.

4. INCREASING SUPPORT FOR SPECIAL EDUCATION

Legal-governmental, socio-cultural and political considerations were associated with the promotion and support of increased payments for Special Education. The last two were similar to those identified above for LDF. It was evident that support of these programs also took account of court judgments which had implication for the education of children with learning handicaps.

5. INCREASING SUPPORT FOR PRIVATE SCHOOLS

Economic, socio-cultural and political conditions were associated with expanded support for private schools, as detailed in the case study outlined earlier in this section. The influence of groups such as AISCA and ESCE was more effective than that exercised by groups such as ATA and ASTA, both of which generally opposed an expansion of government support in this area. Underlying some of the political demands and the government response were economic and socio-cultural factors, respectively. Economic conditions resulted in severe financial hardship for many private schools, a condition which was documented in various representations to government at the time of emerging government policy. A socio-cultural condition appeared to be an increasing sense of “fairness” which probably had its impact in lack of opposition to government action, rather than overt support except from those with a special interest in private schools.

6. DIFFERENTIATION OF SUPPORT

All environmental conditions were associated with changes since 1972 which have provided differentiated support through SSAG, SREG, DEG, SSJG and CAG. The technological condition, which supported rather than promoted the change, was the increasing capability of Alberta Education to provide a data base of value in needs assessment and for the analysis of alternatives. This condition had its foundation in the early 1970s when the PPBES Project was established and experience and expertise were acquired. Also, of course, the expanded use of computers in Alberta Education made clarification studies somewhat easier than in the 1960s. Examples of the way in which such analysis assisted the planning and decision process were evident in MACSF 1972, and to a larger extent in MACSF 1975. Legal-governmental conditions were apparent in the case of change related to corporate assessment; judgments in the courts related to the allocation of property tax from corporations were a major factor in this respect. Demographic conditions also were apparent in the analysis of factors associated with the recent CAG, which provided support to public school systems which lost funds as a result of new regulations related to the distribution of corporate property tax between public and separate systems. Demographic conditions also clearly prevailed in shaping change for other aspects of differentiation of support: examples relate to declining enrolments, small school systems and small schools.

Economic conditions also shaped change with respect to SREG which gave assistance to schools with low assessment per pupil. Socio-cultural conditions were reflected in demands made on government for change in a number of areas. Instances were cited throughout the study of the manner in which school systems, business and community organizations made clear to the Minister their desires, needs, wants and demands. The increasingly powerful role of MLAs was also apparent.

C. **Conclusions**

The conclusions suggested by the findings deal with the policy/decision process in general, the relationship between the financial plan and the education plan, the evolution of payments under SGR, mechanisms for planning and in-house decision making.

1. POLICY/DECISION PROCESS IN GENERAL

a. It was clear in all of the changes that government makes policy with respect to school finance arrangements. While personnel in Alberta Education have important roles to play, the policies in each instance have the unmistakable stamp of directions determined by the government in response to the kinds of conditions summarized earlier in this section.

b. Political interest group theories best describe the manner in which policy which is reflected in finance arrangements is made by the government of Alberta. Harmon (1980: 60) describes this view of the policy process: Political interest group theories stress the importance of external pressure from interest groups or pressure groups. One of the major theorists in this tradition has emphasized that society is composed of a multiplicity of competing groups, and that it is impossible to explain or predict policy outcomes without taking these into account. A group makes claims or demands concerning particular issues or goals according to three main clusters of variables: the internal characteristics of the group, its relative strategic position in society, and characteristics of government or governance procedures.

Sloan's account of the policy making process with respect to the development of support of private schools is a superb illustration of the "political interest group" approach to policy making of the current government. The same characteristics are evident, however, in varying degrees in each of the changes considered in this study.

c. The opinion of some interviewees that no interest/referent group has precedence in policy making was supported in this study. One interviewee noted that even the position of Alberta Education is not unique except when it comes to judgments on questions of feasibility.

d. Several models of dynamic policy change were represented among those considered in this study. Rose (cited by Harmon, 1980: 63) identified four dynamic models of policy change — static, cyclical, linear progress and discontinuity. With the static model, there is no discernible change in a policy over time. With the cyclical model, the government or agency alternates between one option and another. With a linear progress model, there are gradual steps toward some clearly identified goal or end. With the discontinuity model, a new policy objective marks a break from the past, often involving repudiation of established policy.

Increased support of private schools is one instance of the linear progress model of policy change, with incremental steps toward the declared government policy of supporting category one schools to the extent of 80% of grants given under SFPF. The move to a per pupil grant in the instructional component of SFPF would appear to be an instance of the discontinuity model; various working documents examined by the researcher made clear that the government was very conscious of overcoming what it saw as "disadvantages" of the previous means of distributing money.

e. The role of senior administrators in Alberta Education in the policy process would appear to be best described by Harmon's (1980: 71-72) description of the mediator:

- The administrator is often called on to mediate between the demands of competing outside interest groups.
- The administrator may be called on to mediate between the organization and its political master(s).
- Administrators often have to mediate between their organization and others.
- Administrators often find that part of their task is to mediate among groups and interests within their own organization.
- Part of the administrator's task within the organ-

ization is to mediate between different perspectives —short-term needs and long-term view, or selfish needs of the organization and the public interest.

f. The element of time appeared to be an important characteristic of the policy making process as far as school finance arrangements are concerned. Worth (1978: 3) offers the following account: The potential for change is frequently the greatest at the beginning of a term when interests and powers are being realigned, the nature of the mandate is undergoing refinement and articulation, and there are expectations for change. Communication processes and operational procedures are relatively free and open, and under review.

Worth also considers that the new leader's need to "do something different or memorable is virtually uncontrollable".

The actions of the government in 1972 and 1973 are consistent with Worth's view. A number of interviewees referred to the government's desire to do something "exemplary" in the field of education. Recent initiatives in support of community schools might also fit this model. The implementation of ECS, EOF and LDF, together with the narrowing of weighting factors in the instructional component of SFPF, would appear to fall in this category. Indeed, these changes, all of which occurred in the first two years of the government's term, mark the most significant changes to school programs in Alberta during the decade.

2. RELATIONSHIP BETWEEN FINANCE PLAN AND EDUCATION PLAN

Two conclusions may be drawn with respect to the relationship between a *finance plan* — the specification of the ways and means money is to be distributed by the province to achieve designated goals — and an *education plan* — the specification of the ways and means the goals of education in the province are to be achieved.

First, the two major dimensions of Alberta's arrangements for financing education are made clear in a number of documents considered in the study. Moreover, there has been a consistent interpretation of the intent of the current finance arrangements. In concise terms, one component of funding under the School Foundation Program grant is concerned with fiscal equalization, while the second component (payments under SGR) is concerned with equity — differentiation of support in recognition of variation in educational needs.

Second, the linkage between an education plan and a finance plan is relatively clear in some elements of SGR, but it is not now as clear as it was as far as SFPF is concerned. It is the judgment of the researcher that an important education dimension of the instructional element of SFPF was "lost" in 1973 with the decision by the government to move to a per pupil grant. As noted by several interviewees, the previous reliance on CRU and SSG clearly signalled the view of government in one important aspect of an educational plan. This conclusion is drawn without making any judgment on the merits or otherwise of a CRU/SSG type of grant or alternatives which attempt to reflect a relationship between a finance plan and an education plan.

3. EVOLUTION OF PAYMENTS UNDER THE SCHOOL GRANTS REGULATIONS

The increase in number and complexity of SGR is a consequence of:

- a reflection of the complexity and sophistication in any school finance plan which includes in its purpose the need to achieve equality of opportunity through differentiation of support;
- the incremental and disjointed aspect of the evolution in SGR — incremental because of the nature of the change process as well as the continuing increase in the sources of inequity; disjointed because the problems to which the grants respond rarely occur singly or at regular intervals;
- the apparent desire of the government to maintain the visibility of the grants — the nature and extent of government support of particular programs can be conveyed better through discrete grants than through a consolidation of grants;
- the need recognized by government as well as interest/referent groups that a continuation of discrete grants is necessary if the provision of services is to be assured in all cases;
- lack of agreement as to which grants might be "coalesced" into SFPF.

Simplification of SGR through devices such as coalescing into SFPF will be difficult as long as SFPF is ill-defined in its relationship to an education plan. This conclusion is related to that cited earlier in which the educational purpose of differentiation of support through many grants under SGR is clear, while the educational dimension of the instructional component of SFPF was "lost" in 1973.

4. MECHANISMS FOR PLANNING

The planning capability of Alberta Education was enhanced by decisions in the early 1970s to establish a PPBES Project and the Planning and Research Branch. The researcher concluded that the differentiation of support through the complex SGR could have been accomplished only with the knowledge, skill, practices and techniques which had their foundation in PPBES/PAB and the continued application of these same characteristics in the Planning and Research Branch.

There was evidence in the study that many problems, ill-defined in most cases, were not the subject of effective planning until these mechanisms became operational in the mid-1970s. One example of this problem was the recognition by MACSF 1972 of the principles of differentiation of support; aside from other considerations, the planning mechanisms were not in place at the time to permit the kind of policy analysis required.

A continuing capability to assess the impact of school finance arrangements has not been achieved with the current planning mechanisms, despite the clearly stated preference for such a state by the Planning and Research Branch in early 1976. The reasons include: (a) the extensive commitment to other activities of those in Alberta Education with knowledge and expertise, and (b) a lack of financial resources. The decision to support the current series of studies represents a new step because of the attempt to get tools and data to carry forth the discussions.

The various MACSFs appear to have operated as "first order" planning groups. Despite the characterization of MACSF 1972 as a "policy-reaction" body, its deliberations were conducted within a framework of policy constraints. The Committees have been more involved with considerations for efficient planning than with policy development and/or recommendations.

Given a planning rather than a policy orientation, the MACSF-type structure would appear to have some limitations. There is some question as to the efficiency of such bodies as planning bodies, given potential role conflicts between representatives from the ATA and ASTA, organizations which have clearly different interests in important aspects of school finance arrangements.

MACSF-type groups have had purposes other than those defined in their Terms of Reference. Several interviewees from Alberta Education freely recognized that MACSF provides a valuable opportunity for nominees of interest groups to: (1) share their views in open meetings where interaction is possible, (2) learn more about the problems faced by Alberta Education, and alternatives under consideration, and (3) acquire knowledge about school finance arrangements from other experts who serve.

The "clarification studies" which have been undertaken during the period 1972-80 have served a variety of purposes including problem definition, impact analysis and evaluation. Not all studies have resulted in an immediate response by government. This use of research is consistent with that proposed by Worth (1978: 5): "Our concept of the role of research must embrace both the frequently ill-defined period in which the problem is identified and the recognition that decisions are made over time by policy makers located in different parts of the bureaucratic organization whose view of the problem may differ. Hence, the functions of policy research ought to include the identification of problems as well as the analysis of possible solutions and the evaluation of outcomes. An additional inclusion should be its use as a means by which a common view of the nature of the problem can be communicated to members of the organization."

This current series of studies on "Financing K-12 Schooling in Alberta" would appear to embrace all those purposes identified by Worth.

5. IN-HOUSE DECISION MAKING

Consideration was given in this study to the activities of the In-House Finance Committee (1972-76) and the Finance and Legislation Committee (1976-1980). The role of these groups can best be described as "mediator" in the sense defined above. Three broad groups of activities characterize this role:

— Both committees had roles in the legislative process. For both policy making and implementation, deliberations have focused on the problem definition, creation of alternatives, and feasibility testing through examination of desirability, workability and acceptability.

- The In-House Finance Committee had a major role in MACSF 1972 and 1975. In both instances, the Committee participated in decisions related to the Terms of Reference. Again, following the publication of the final reports, the In-House Finance Committee devoted a substantial amount of time to feasibility testing.
- Both committees have fulfilled an additional analytical role; namely, through detailed scrutiny of briefs prepared by the major interest groups as well as resolutions adopted at the Annual Conventions of ASTA and the Annual Representative Assembly of ATA.

VI. RECOMMENDATIONS

A. Suggestions for Use

It was suggested in Section I that the framework for policy making utilized in this study served three purposes: (a) it provided a context for this and other studies in the ongoing process of policy making, (b) it guided the collection of information related to the policy making process under consideration in this study, and (c) it suggested guidelines on which judgments could be made on the adequacy of the policy making process. The first and third of these purposes define ways in which the findings, conclusions and recommendations in this report may be given further consideration.

With respect to the first purpose, this study may be viewed as contributing to "problem definition" in response to current issues in the finance of education in Alberta. Alternatively, it may be seen as contributing to an information base to be used in an examination of future policy alternatives — "coordination with existing related policies". Again, it may be considered a "clarification study" to the extent that it examines the policy process itself. As far as the third use is concerned, a basis exists for making some general comments about the adequacy of the process, assuming that all elements of the framework should be in evidence, especially those related to problem definition, coordination with existing related policies, communication with constituents, and clarification studies.

B. Recommendations

This section contains recommendations in the form of questions for further consideration. In each instance, the question is followed by indicators of further action; that is, those findings and conclusions which suggest that the question warrants consideration at this time.

The recommendations and indicators take account of the responses given by interviewees identifying the strengths and weaknesses of current approaches to policy/decision making as they concern school finance arrangements.

1. RELATIONSHIP BETWEEN FINANCE PLAN AND EDUCATION PLAN

Should a first priority of government be the specification of an education plan which will form the basis of SFPF?

The indicator is the conclusion drawn above that the relationship between a finance plan and an education plan is relatively clear in some elements of SGR; it is not now as clear as it was as far as SFPF is concerned. The education dimension of the instructional element of SFPF was lost in 1973 with the decision to move to a per pupil grant. The critical comment of many interviewees suggests the importance of urgent action in this regard.

A further indicator was the conclusion that simplification of the SGR through devices such as coalescing into SFPF will be difficult as long as SFPF is ill-defined in its relationship to an education plan.

It was not the purpose of this study to make judgments about the merits of the former CRU/SSG types of grants which attempted to reflect a relationship between a finance plan and an education plan. It is of interest however that the Fact-Finding Commission which was established following the collective bargaining dispute between the Calgary Board of Education and its teachers recommended (Kratzmann, Byrne and Worth, 1980: 48) an adjustment to SFPF on the basis of (1) an average instructional work-week of 20 hours for each teacher, and (2) an average ratio of 20 pupils for each on-site school professional, exclusive of school administrators. This recommendation may well shape much of the discussion should attention turn to a definition of an education plan in the manner suggested by the question above.

2. PROCESSES FOR DEFINING AN EDUCATION PLAN

What processes should the government employ to determine the components of an education plan?

The indicator for action in this area is the view expressed by several interviewees that a broadly-based process should begin which will secure information from all with an interest in education in this province. Elements of such a process were identified in some instances, for example, a series of public hearings around the province, a sophisticated technical study with further examination by a panel of experts, preparation of a government "white paper", followed by an extended opportunity for reaction.

3. SIMPLIFICATION OF SCHOOL GRANTS REGULATIONS

Should action be taken to reduce the nature and complexity of grants under SGR?

An affirmative sign is the recurring support for such action by many individuals and organizations with an interest in education. A negative sign has political and control aspects, namely the desire on the part of government to maintain a highly visible system of support to education and the perceived need to maintain discrete grants in order that programs considered desirable will be maintained.

Simplification will follow once the first question above has been addressed. It is apparent that many components of the system of funding under SGR will be included in a definition of an education plan.

It is evident from this question and the first that attention must soon be focused on the "ends" of education.

4. MECHANISMS FOR PLANNING

What steps should be taken to ensure that Alberta Education has a continuing capability to acquire information to assist in policy making and planning as these affect school finance arrangements?

The indicators of need in this regard were the often-cited lack of data bases in 1972 and 1975 and the fact that personnel in Alberta Education with interest, experience and expertise in the area are extensively committed to other activities. The judgment of some interviewees that Alberta Education currently lacks a capability to assess the impact of school finance arrangements supports the urgency of this question. It is acknowledged that an assessment of the current series of studies will largely shape the answer.

Is there a future role for a Minister's Advisory Committee on School Finance?

The positive indicators are the continued expression of support for MACSF-type groups. While their limitations are acknowledged, the benefits are generally considered to warrant continuation.

The negative indicators lie in the frequently-cited limitations of the approach, notably the time devoted to deliberations, as well as their closed nature.

Interviewees offered a variety of suggestions which relate to this question:

— The endeavor should have a policy as well as a technical or planning focus.
— The government may place constraints in terms of carefully specified Terms of Reference, of the kind established in 1975.
— The data gathering phase should be intensive and broadly-based.
— Interest groups should have an opportunity to suggest the nature of studies which will provide the basis for further deliberations.
— A small select committee or task force may have the responsibility of determining the nature of studies, monitoring their implementation and finally, preparing recommendations in a manner consistent with the Terms of Reference.
— Consistent with a Task Force approach, membership of the group described above should be defined on the basis of experience and expertise in at least four areas: (a) school finance, (b) educational programs, (c) planning approach focusing on the relationship between finance and instruction, and (d) administration at the school system level.
— There should be an opportunity for stakeholder groups to participate in every stage of the process, though they need not necessarily be represented on the select committee or task force.
— The activities set out above should be conducted within a clearly defined period of time.
— There should be opportunity for public reaction to the recommendations which follow from the process outlined, but this period should not be protracted, given the limitations with respect to public expertise in the area of school finance.

The researcher concludes that school finance arrangements are the financial translation of government policy in matters related to education. Writers in the area of policy making recognize that the process is complex, incremental, disjointed and often ill-defined. The process suggested by the listing above assumes a set of conditions which are in many ways inconsistent with the way policy issues arise and are resolved by government. Despite our best intentions, there will be limits to the rationality of the process.

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CHAPTER III

SITUATION REVIEWS ON FINANCING SCHOOLING IN ALBERTA

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The material presented in this chapter is excerpted from a larger study conducted by Eugene Ratsoy et al.

I. INTRODUCTION

A review of a provincial system of educational finance logically begins with an examination of the present situation and an analysis of recent trends. The results of such a study will give policy-makers information about aspects of financing which may require attention and will guide the development of the more intensive analysis that should precede major changes in policy. In accordance with this general perspective, a study was carried out on selected characteristics of schooling in Alberta.

This report is organized into four sections: provincial revenue and expenditure patterns, trends in Alberta fiscal equalization grants, curriculum trends in Alberta, and characteristics of educational staff, teaching situations and enrolments. Each of the four sections provides information on the specific problem outlined, an overview of the methodology and data sources, and a summary of major findings and conclusions.

A summary of the entire study, projections into the future, and recommendations for further research conclude the chapter.

II. PROVINCIAL REVENUE AND EXPENDITURE PATTERNS

The analysis of the finances of school jurisdictions focused on three research questions:

- What changes are evident in educational finance at the local level for 1972-79?
- What patterns of revenues and expenditures were characteristic of different groups of jurisdictions in 1979?
- What relationships are evident among revenue and expenditure categories for 1977, 1978 and 1979?

A. Data Sources And Methodology

Data for the analyses reported in this chapter were obtained from Alberta Education. Information on local jurisdiction finance, used in identifying trends in revenues and expenditures, was taken from *Financial and Statistical Reports of Alberta School Boards* for the various years of the study. Data for identifying and analyzing patterns of revenues and expenditures were obtained from Alberta Education computer tapes which contain details of revenues and expenditures for Alberta school jurisdictions for 1979. The data for analyzing the relationships among revenue and expenditure categories came from the 1979 computer tapes as well as similar tapes for 1977 and 1978.

A different methodology was used for each of the three research questions. Changes from 1972 to 1979 involved trend analysis, while the search for patterns was based on a discriminant analysis. Correlational analysis was used in examining relationships among revenue and expenditure categories.

In order to determine whether there were trends in the revenue and expenditure categories for 1972-79, the data were first converted to percentages, and then subjected to a statistical test, the sign test. The percentage in each category was compared against the similar percentage for the previous year, and assigned a plus sign, a minus sign, or a zero, depending on the nature of the change over the previous year. The series of signs was then examined using the sign test, with the alpha level set at 0.05. This methodology's strength is a high degree of certainty that a trend really exists where it has been identified. The weakness is that some trends may exist but may not be identified as such.

The identification of patterns of revenue and expenditure involved a modified factor analysis approach using 1979 revenue and expenditure data for all operating jurisdictions. The purpose was to determine if jurisdictions could be grouped according to particular patterns.

The third part of the analysis consisted of an examination of Pearson product-moment correlations among items of revenue and expenditure for each of 1977, 1978 and 1979. The relatively large number allowed an alpha level of 0.001 to be used.

B. **Trends In Revenues And Expenditures**

At the time of the analysis, data for 1979 on revenues and expenditures of counties were not available, so the analysis of trends focused on 1972 through 1978.

1. REVENUES TRENDS

Revenues, by source, for all jurisdictions in the province were compiled and are shown in Table III.1.

TABLE III.1

Revenues for All Jurisdictions, in $000s

Year	SFPF[1]	SGR	Suppl. Requs.	Federal	Other	Total	SFPF + SGR
1972	320,795	13,671	50,347	7,211	14,952	406,976	334,466
	(78.8%)	(3.4%)	(12.4%)	(1.8%)	(3.6%)		(82.2%)
1973	343,326	18,675	56,299	8,278	14,534	441,112	362,001
	(77.8%)	(4.2%)	(12.8%)	(1.9%)	(3.3%)		(82.0%)
1974	368,215	28,625	74,172	8,468	17,336	496,816	396,840
	(74.1%)	(5.8%)	(14.9%)	(1.7%)	(3.5%)		(79.9%)
1975	420,124	61,695	107,060	10,856	17,530	617,265	481,819
	(68.1%)	(10.0%)	(17.3%)	(1.8%)	(2.8%)		(78.1%)
1976	468,678	57,987	131,293	12,621	24,379	694,958	526,665
	(67.4%)	(8.3%)	(18.9%)	(1.8%)	(3.5%)		(75.7%)
1977	515,868	63,923	161,756	14,962	23,938	780,447	579,791
	(66.1%)	(8.2%)	(20.7%)	(1.9%)	(3.1%)		(74.3%)
1978	551,101	73,230	192,740	15,491	28,439	861,001	624,331
	(64.0%)	(8.5%)	(22.4%)	(1.8%)	(3.3%)		(72.5%)
Alpha Level for Sign Test	0.016[2]	0.234	0.016[2]	0.313	0.313	0.313	

[1] SFPF — School Foundation Program Fund
SGR — School Grants Regulations
Suppl. Requs. — Supplementary Requisitions
Federal — Federal Grants

[2] Significant at the 0.06 level.

Then the sign test was used to determine if the year-to-year changes were consistent or random. Two of five categories — School Foundation Program Fund (SFPF) and Supplementary Requisition revenues — showed significant non-random trends. An examination of the SFPF category showed that the proportion of revenues obtained under this provision declined consistently from 78.8% in 1972 to 64.0% in 1978. Similarly, the proportion of funds obtained from Supplementary Requisitions increased consistently from 12.4% in 1972 to 22.4% in 1978.

Within the School Grants Regulation (SGR) category, although year-to-year change appeared to be random, overall the combined proportion more than doubled (3.4% to 8.5%) from 1972 to 1978.

When the two categories of SFPF and SGR are combined to form an index of provincial share of school revenues, the index reflects a consistent downward trend in proportion of revenue from provincial sources.

2. EXPENDITURES TRENDS

The expenditures for all jurisdictions in the province were compiled and are shown in Table III.2.

The same sign test was used to determine consistency or randomness of change. Probabilities associated with consistent change are shown at the bottom of the table.

There was no evidence of significant trends for any of the categories. Whatever changes occurred for each of the categories over the seven-year period did not differ significantly from those which could be accounted for by random changes.

TABLE III.2

Expenditures for All Jurisdictions, in $000s

Year	Instruction	Administration	Operation & Maintenance	Transportation	Other	Total
1972	265,069 (65.1%)	15,176 (3.7%)	46,485 (11.4%)	22,108 (5.4%)	58,138 (14.3%)	406,976
1973	291,953 (66.2%)	15,816 (3.6%)	50,552 (11.5%)	22,302 (5.1%)	60,489 (13.7%)	441,112
1974	328,482 (66.1%)	21,027 (4.2%)	56,568 (11.4%)	25,332 (5.1%)	65,407 (13.2%)	496,816
1975	413,359 (67.0%)	26,397 (4.3%)	71,625 (11.6%)	31,346 (5.1%)	74,538 (12.1%)	617,265
1976	470,025 (67.6%)	30,014 (4.3%)	83,776 (12.1%)	35,918 (5.2%)	75,225 (10.8%)	694,958
1977	523,100 (67.0%)	35,030 (4.5%)	97,823 (12.5%)	39,323 (5.0%)	85,171 (10.9%)	780,447
1978	571,684 (66.4%)	41,242 (4.8%)	109,060 (12.7%)	44,473 (5.2%)	94,541 (11.0%)	861,000
Alpha Level for Sign Test	.313	.156	.094	.375	.234	

3. VARIATIONS IN REVENUES BY JURISDICTION TYPE

Revenues were characterized by source for these types of jurisdictions: city districts (Table III.3), counties (Table III.4), school divisions (Table III.5), and other districts (Table III.6). Again, the directions of the changes over the previous years were examined using the sign test, and the probabilities under null hypotheses of random change included in the tables.

There were significant trends in the city district revenue data for SFPF and Supplementary Requisition. From 1972 to 1979, SFPF declined from 77.7% to 59.9% and Supplementary Requisition increased from 14.8% to 28.3%.

In the county revenue data, Supplementary Requisition increased from 9.7% in 1972 to 17.9% in 1978.

Also, in school division data of source of revenue,

TABLE III.3

Revenues for City Districts, in $000s

Year	SFPF	SGR	Sup. Req.	Federal	Other	Total
1972	180,364 (77.7%)	8,212 (3.5%)	34,438 (14.8%)	1,930 (0.8%)	7,136 (3.1%)	232,080
1973	192,512 (77.2%)	10,907 (4.4%)	36,827 (14.8%)	2,185 (0.9%)	7,001 (2.8%)	249,432
1974	206,664 (73.4%)	16,210 (5.8%)	49,975 (17.8%)	2,106 (0.7%)	6,587 (2.3%)	281,542
1975	232,313 (67.0%)	32,192 (9.3%)	73,764 (21.3%)	2,734 (0.8%)	5,919 (1.7%)	346,922
1976	254,825 (65.6%)	30,104 (7.8%)	89,388 (23.0%)	3,099 (0.8%)	10,815 (2.8%)	388,231
1977	286,025 (64.6%)	34,202 (7.7%)	109,042 (24.6%)	3,339 (0.8%)	10,440 (2.4%)	443,048
1978	300,321 (62.7%)	37,689 (7.9%)	127,882 (26.7%)	3,608 (0.8%)	9,685 (2.0%)	479,185
1979	330,233 (59.9%)	44,543 (8.1%)	155,884 (28.3%)	4,174 (0.8%)	16,713 (3.0%)	551,549
Alpha Level for Sign Test	0.008[1]	0.168	0.016[1]	0.375	0.164	

[1] Significant at 0.05 level.

SFPF declined from 78.1% in 1972 to 61.4% in 1979 and Supplementary Requisition increased from 8.9% in 1972 to 18.4% in 1979.

The one significant trend in other districts' source of revenue data was an increase in the Supplementary Requisition from 8.2% in 1972 to 15.1% in 1979.

4. VARIATIONS IN EXPENDITURES BY JURISDICTION TYPE

The expenditures of the jurisdictions were analyzed using a procedure similar to that used in the analysis of revenues. Tables III.7 through III.10 present the data, including probabilities of random change and significant trends.

In the city district expenditures, the transportation category showed the only significant trend — an increase from 1.2% in 1972 to 2.4% in 1979.

County expenditures also had their only significant trend in transportation — a decline from 12.1% in 1972 to 10.3% in 1978.

There was also a significant trend in the transportation category for school divisions: a decline from 13.3% in 1972 to 10.2% in 1979.

There were no significant trends in any of the expenditure categories for other districts.

C. **Patterns Of Revenues And Expenditures**

The 1979 revenue and expenditure data for all operating jurisdictions were analyzed for the existence of patterns, in order to determine if jurisdictions could be grouped according to particular configurations of revenues and expenditures.

The data were manipulated to reduce the effect of differences in size among jurisdictions, and to elimi-

TABLE III.4

Revenues for Counties, in $000s

Year	SFPF	SGR	Sup. Req.	Federal	Other	Total
1972	67,515 (82.8%)	1,659 (2.0%)	7,873 (9.7%)	1,000 (1.2%)	3,520 (4.3%)	81,567
1973	72,030 (81.3%)	2,370 (2.7%)	9,571 (10.8%)	1,231 (1.4%)	3,357 (3.8%)	88,559
1974	77,698 (77.8%)	4,333 (4.3%)	11,621 (11.6%)	1,486 (1.5%)	4,771 (4.8%)	99,909
1975	89,359 (71.9%)	11,440 (9.2%)	16,314 (13.1%)	1,770 (1.4%)	5,449 (4.4%)	124,332
1976	100,326 (72.8%)	9,907 (7.2%)	20,365 (14.8%)	2,229 (1.6%)	4,997 (3.6%)	137,824
1977	111,192 (71.6%)	11,098 (7.1%)	25,863 (16.7%)	2,579 (1.7%)	4,499 (2.9%)	155,231
1978	120,732 (69.3%)	13,717 (7.9%)	31,153 (17.9%)	2,939 (1.7%)	5,704 (3.3%)	174,245
Alpha Level for Sign Test	0.094	0.234	0.016[1]	0.156	0.234	

[1] Significant at 0.05 level.

nate the effect of consistent differences among categories of revenues and expenditures. The data for each jurisdiction therefore provided measures of the levels of revenues or expenditures relative to the average for all jurisdictions. The data were then recast in order to group jurisdictions according to their pattern of revenues and expenditures.

Upon completion of this analysis, there appeared to be four identifiable patterns of revenues and expenditures, as seen in Table III.11, below.

1. The first group consisted mainly of school divisions and counties, which tended to be above average in the proportion of expenditures for transportation and below average in the proportion of revenues from "Other Provincial Grants" and the proportion of expenditures for Early Childhood Education (ECS).
2. The second group tended to consist of small public and separate districts. The jurisdictions in this group tended to be above average in the proportion of revenues from SFPF and above average on the pro-

TABLE III.5

Revenues for School Divisions, in $000s

Year	SFPF	SGR	Sup. Req.	Federal	Other	Total
1972	52,312 (78.1%)	2,926 (4.4%)	5,881 (8.9%)	3,250 (4.9%)	2,601 (3.9%)	66,970
1973	55,125 (76.0%)	4,030 (5.6%)	7,172 (9.9%)	3,782 (5.2%)	2,398 (3.3%)	72,507
1974	59,368 (72.5%)	6,080 (7.4%)	9,100 (11.1%)	3,653 (4.5%)	3,649 (4.5%)	81,850
1975	68,852 (67.5%)	12,845 (12.6%)	12,400 (12.2%)	4,881 (4.8%)	3,009 (3.0%)	101,987
1976	76,598 (66.8%)	12,405 (10.8%)	15,325 (13.4%)	5,614 (4.9%)	4,748 (4.1%)	114,690
1977	85,489 (65.9%)	13,061 (10.1%)	19,730 (15.2%)	7,214 (5.6%)	4,302 (3.3%)	129,796
1978	93,251 (64.3%)	15,450 (10.6%)	24,346 (16.8%)	6,897 (4.8%)	5,077 (3.5%)	145,021
1979	99,787 (61.4%)	18,850 (11.6%)	29,903 (18.4%)	7,895 (4.9%)	6,200 (3.8%)	162,635
Alpha Level for Sign Test	0.008[1]	0.164	0.008[1]	0.164	0.273	

[1] Significant at 0.05 level.

portion of expenditures for elementary and junior high school instruction. They were below average in the proportion of revenues from Supplementary Requisition and in the proportion of expenditures for senior high school instruction.

3. The third group tended to consist of medium-sized public and separate districts, and tended to be above average in the proportion of expenditures for ECS and capital, and below average in the proportion of revenues from other provincial grants.

4. The fourth group consisted mainly of urban area districts and urban area divisions and counties, and tended to be above average in the proportion of revenues from Supplementary Requisition and in the proportions of expenditures for ECS and capital. They tended to be below average in the proportion of revenues from other provincial grants.

The value of the groupings in this analysis may be in considering the impact of proposed changes in grants. Since the groups have much in common, it seems advisable to consider changes in grants in

TABLE III.6

Revenues for Other (Non-city) Districts, in $000s

Year	SFPF	SGR	Sup. Req.	Federal	Other	Total
1972	20,604 (78.2%)	874 (3.3%)	2,155 (8.2%)	1,031 (3.9%)	1,695 (6.4%)	26,359
1973	23,659 (77.3%)	1,368 (4.5%)	2,729 (8.9%)	1,080 (3.5%)	1,778 (5.8%)	30,614
1974	24,485 (73.1%)	2,002 (6.0%)	3,476 (10.4%)	1,223 (3.6%)	2,329 (6.9%)	33,515
1975	29,600 (67.2%)	5,218 (11.9%)	4,582 (10.4%)	1,471 (3.3%)	3,153 (7.2%)	49,024
1976	36,929 (68.1%)	5,571 (10.3%)	6,215 (11.5%)	1,679 (3.1%)	3,819 (7.0%)	54,213
1977	33,162 (63.3%)	5,562 (10.6%)	7,121 (13.6%)	1,830 (3.5%)	4,697 (9.0%)	52,372
1978	36,797 (58.8%)	6,374 (10.2%)	9,359 (15.0%)	2,047 (3.3%)	7,973 (12.7%)	62,550
1979	31,323 (58.8%)	6,589 (12.4%)	8,032 (15.1%)	2,164 (4.1%)	5,201 (9.8%)	53,309
Alpha Level for Sign Test	0.094	0.273	0.016[1]	0.313	0.313	

[1] Significant at 0.05 level.

terms of their impact on each group of jurisdictions, rather than on individual jurisdictions or the total of jurisdictions for the province.

D. **Correlations Among Revenues And Expenditures**

The 1977, 1978 and 1979 audited Financial Statements were analyzed to discover the relationships among revenue categories, expenditure categories, and between revenue and expenditure categories, to determine whether associations existed where they could be expected and whether there were any unexpected correlation patterns.

The basic data for this section of the report consisted of three replications of a correlation matrix, each using data from a different year, the dollar amounts having been converted to percentages to reduce the effect of differences in size among the jurisdictions. In all three matrices, the expenditures were considered in terms of the proportion of total expenditures for these function classifications: Early Childhood Instruction, Elementary School Instruction, Junior High School Instruction, Senior High School Instruction, Special Education, Community

TABLE III.7

Expenditures for City Districts, in $000s

Year	Instruction	Administration	Operation & Maintenance	Transportation	Other	Total
1972	156,078 (67.3%)	8,916 (3.8%)	28,506 (12.3%)	2,673 (1.2%)	35,907 (15.5%)	232,080
1973	172,695 (69.2%)	8,660 (3.5%)	31,063 (12.5%)	3,067 (1.2%)	33,947 (13.6%)	249,432
1974	193,555 (68.7%)	10,535 (3.7%)	34,462 (12.2%)	4,193 (1.5%)	38,797 (13.8%)	281,542
1975	243,847 (70.3%)	13,147 (3.8%)	43,224 (12.5%)	5,335 (1.5%)	41,369 (11.9%)	346,922
1976	274,691 (70.8%)	14,549 (3.7%)	51,054 (13.2%)	7,131 (1.8%)	40,806 (10.5%)	388,231
1977	312,035 (70.4%)	16,753 (3.8%)	59,440 (13.4%)	8,477 (1.9%)	46,343 (10.5%)	443,048
1978	333,290 (69.6%)	19,431 (4.1%)	64,762 (13.5%)	10,127 (2.1%)	51,575 (10.8%)	479,185
1979	369,231 (66.9%)	24,041 (4.4%)	74,569 (13.5%)	13,254 (2.4%)	70,454 (12.8%)	551,549
Alpha Level for Sign Test	0.273	0.164	0.094	0.031[1]	0.313	

[1] Significant at 0.05 level.

Services, Administration, Operation and Maintenance, and Pupil Transportation. The revenue categories included the sub-accounts of the Alberta Education Grants Order (under School Grants Regulations) and the total receipts from the other revenue accounts.

1. REVENUES

In terms of the grade-based allocations of the SFPF, there is a strong association between the proportions of revenues from elementary and junior high school allocations, but no strong correlation between the proportion of receipts from elementary and senior high school allocations.

The proportion of revenues from transportation grants correlated negatively with revenues attributed to elementary education, and with revenues for junior high school education. Revenues for transportation did not correlate significantly with any other revenue categories.

Overall, the proportions of revenues for special categories of students — such as Educational Opportunities Fund (EOF), Learning Disabilities Fund (LDF), Early Childhood Services (ECS) — seem to be highly intercorrelated, which is not surprising since provincial payments to school jurisdictions are based on these categories and an association among various categories of students would be expected.

There was a positive correlation between the proportions of receipts from SSAG and DEG. However,

TABLE III.8

Expenditures for Counties, in $000s

Year	Instruction	Administration	Operation & Maintenance	Transportation	Other	Total
1972	51,799	2,681	7,938	9,896	9,253	81,567
	(63.5%)	(3.3%)	(9.7%)	(12.1%)	(11.3%)	
1973	56,936	2,628	8,649	9,948	10,398	88,559
	(64.3%)	(3.0%)	(9.8%)	(11.2%)	(11.7%)	
1974	63,641	4,504	10,056	11,044	10,664	99,909
	(63.7%)	(4.5%)	(10.1%)	(11.1%)	(10.7%)	
1975	79,363	5,635	12,866	13,847	12,621	124,332
	(63.8%)	(4.5%)	(10.3%)	(11.1%)	(10.2%)	
1976	88,781	6,661	14,056	15,161	13,165	137,824
	(64.4%)	(4.8%)	(10.2%)	(11.0%)	(9.6%)	
1977	98,801	7,591	17,206	16,370	15,263	155,231
	(63.6%)	(4.9%)	(11.1%)	(10.5%)	(9.8%)	
1978	111,120	8,609	19,985	17,862	16,669	174,245
	(63.8%)	(4.9%)	(11.5%)	(10.3%)	(9.6%)	
Alpha Level for Sign Test	0.234	0.250	0.094	0.031[1]	0.313	

[1] Significant at 0.05 level.

neither was strongly correlated with SREG. The proportion of revenues from SREG was either negatively or not meaningfully correlated with other receipts for elementary, junior high, senior high school and special education revenues.

2. EXPENDITURES

Research revealed a consistent negative correlation between the expenditure categories of administration and transportation and all other expenditure categories. The majority of the coefficients did not reach a meaningful level; seven of 10 reaching that level are negative. A possible interpretation is that the proportions of expenditure in each category are relatively independent or at least do not vary together.

3. REVENUES vs. EXPENDITURES

If the purpose of a grant is to persuade a school board to spend in certain ways, then correlations here indicate that a measure of success has been achieved, e.g., proportions of revenues from elementary, junior and senior high school allocations correlate highly with proportions of expenditures in the same areas.

The two expenditure functions that significantly correlate with the largest numbers of revenue categories are ECS and Special Education. This fact might

TABLE III.9

Expenditures for School Divisions, in $000s

Year	Instruction	Administration	Operation & Maintenance	Transportation	Other	Total
1972	39,613 (59.2%)	2,458 (3.7%)	7,386 (11.0%)	8,922 (13.3%)	8,591 (12.8%)	66,970
1973	42,436 (58.5%)	2,910 (4.0%)	7,826 (10.8%)	8,634 (11.9%)	10,701 (14.8%)	72,507
1974	49,205 (60.1%)	3,814 (4.7%)	8,857 (10.8%)	9,257 (11.3%)	10,717 (13.1%)	81,850
1975	61,032 (59.8%)	4,789 (4.7%)	11,262 (11.0%)	11,107 (10.9%)	13,797 (13.5%)	101,987
1976	70,179 (61.2%)	5,464 (4.8%)	13,191 (11.5%)	12,396 (10.8%)	13,460 (11.7%)	114,690
1977	78,866 (60.8%)	6,320 (4.9%)	15,293 (11.8%)	13,361 (10.3%)	15,956 (12.3%)	129,796
1978	88,442 (61.0%)	6,779 (4.7%)	17,610 (12.1%)	14,999 (10.3%)	17,190 (11.9%)	145,020
1979	96,241 (59.2%)	7,579 (4.7%)	20,633 (12.7%)	16,566 (10.2%)	21,616 (13.3%)	162,635
Alpha Level for Sign Test	0.273	0.156	0.094	0.016[1]	0.273	

[1] Significant at 0.05 level.

suggest that while the revenues are provided on the basis of special categories of children, the expenditures and programs are integrated with the total instructional operations.

Also, SSAG and DEG are not meaningfully correlated with expenditure categories, which seems reasonable in that the bases of these two grants, unlike the others, are not related to specific extended functions or program classifications.

4. SUPPLEMENTARY REQUISITION ACCOUNT REVENUES

Attention was paid to the correlations between the proportion of revenues from Supplementary Requisitions and other proportions of both revenues and expenditures.

As noted in B.1, Revenues Trends, there seems to be a negative relationship between the proportion of revenues from SFPF allocations associated with grade-level categories and the proportion of revenues from supplementary requisitions. However, there did not seem to be a consistent relationship to the proportions of expenditure in the various function categories. A more thorough examination would require both the use of other objects of expenditure accounts

TABLE III.10

Expenditures for Other (Non-city) Districts, in $000s

Year	Instruction	Administration	Operation & Maintenance	Transportation	Other	Total
1972	17,579 (66.7%)	1,121 (4.3%)	2,655 (10.1%)	617 (2.3%)	4,387 (16.6%)	26,359
1973	19,886 (65.0%)	1,618 (5.3%)	3,014 (9.8%)	653 (2.1%)	5,443 (17.8%)	30,614
1974	22,081 (65.9%)	2,174 (6.5%)	3,193 (9.5%)	838 (2.5%)	5,229 (15.6%)	33,515
1975	29,117 (66.1%)	2,826 (6.4%)	4,273 (9.7%)	1,057 (2.4%)	6,751 (15.3%)	44,024
1976	36,374 (67.1%)	3,340 (6.2%)	5,475 (10.1%)	1,230 (2.3%)	7,794 (14.4%)	54,213
1977	33,398 (63.8%)	4,366 (8.3%)	5,884 (11.2%)	1,115 (2.1%)	7,609 (14.5%)	52,372
1978	38,832 (62.1%)	6,423 (10.3%)	6,703 (10.7%)	1,485 (2.4%)	9,107 (14.6%)	62,550
1979	33,684 (63.2%)	5,079 (9.5%)	5,250 (9.8%)	1,297 (2.4%)	7,999 (15.0)	53,309
Alpha Level for Sign Test	0.273	0.273	0.273	0.234	0.273	

and the application of partial coefficients so that factors which mask the underlying relationship can be statistically controlled. There is no systematic relationship between proportions of revenues from the Supplementary Requisition and proportions of revenues from SREG.

A more complete and extensive analysis of the interactions of other variables with Supplementary Requisitions is needed to explore the impact of this source of jurisdiction revenues. In this further analysis, data that can relate the impact of assessment and the provincial limit on Supplementary Requisition and the proportions of revenues from SREG should be brought into play.

5. CONCLUSIONS

The correlations discussed here are reported as they appeared in the analysis. Any attempt to explain the relationships must be tentative. These results could be affected by differences in accounting procedures, by differences in definition concerning what expenditures are allocated to what function, and by a variety of other variables. A more complete analysis of these same data would require more theoretical underpinnings as to how school boards behave.

E. Summary

The three separate analyses reported in this section were to some degree exploratory in nature. It was difficult to draw defensible conclusions based on the varied findings. However, some of the findings will be of concern when reviewing the grants system.

1. TRENDS IN REVENUE AND EXPENDITURE CATEGORIES

a. Trends in revenues for all jurisdictions:

— The proportion of revenues obtained from SFPF declined significantly.

— The proportion of revenues obtained from the

TABLE III.11

Relative Placement of Types of Jurisdictions on Revenue and Expenditure Categories

	Rural Area School Divisions and Counties	**Small Districts**	**Medium Districts**	**Urban Area Jurisdictions**
Revenues				
School Foundation Program Fund	above[1]	above	—	—
Other Provincial	below	—	—	below
Federal	—	—	—	—
Supplementary Requisitions	—	below	below	above
Other	—	—	—	—
Expenditures				
Early Childhood Services	below	—	above	above
Elementary	—	above	—	—
Junior High	—	above	—	—
Senior High	—	below	—	—
Special Education	—	—	—	—
Community Services	—	—	—	—
Administration	—	—	—	—
Operations and Maintenance	—	—	—	—
Transportation	above	—	—	—
Capital	—	—	above	—

[1] *Above* indicates above average in revenues or expenditures. *Below* indicates below average in revenues or expenditures. No entry indicates average revenues or expenditures or inconsistency as a group.

Supplementary Requisition increased significantly.

b. There were no significant trends in the expenditure categories for all jurisdictions.

c. Trends in the revenues for city districts, counties, divisions, and other jurisdictions:

— For city districts, SFPF revenues declined significantly as a proportion of total revenues.

— For city districts, the Supplementary Requisition revenues increased significantly as a proportion of total revenues.

— For counties, the Supplementary Requisition revenues increased significantly as a proportion of total revenues.

— For divisions, SFPF revenues declined significantly as a proportion of total revenues.

— For divisions, Supplementary Requisition revenues increased significantly as a proportion of total revenues.

— For other jurisdictions, Supplementary Requisition revenues increased as a proportion of total revenues.

d. Trends in the expenditures of city districts, counties, divisions and other jurisdictions:

— For city districts, transportation expenditures increased significantly as a proportion of total expenditures.

— For counties, transportation expenditures decreased significantly as a proportion of total expenditures.

— For divisions, transportation expenditures decreased significantly as a proportion of total expenditures.

2. PATTERNS OF REVENUES AND EXPENDITURES

a. Rural area divisions and counties followed the same pattern of revenue and expenditure. As compared to the means for all jurisdictions, these jurisdictions were: high in SFPF revenues, low in Other Provincial Grants revenues, low in ECS expenditure, high in transportation expenditure.

b. Small districts followed a pattern of revenues and expenditures which differed from other patterns. As compared to the mean for all jurisdictions, these jurisdictions were: high in SFPF revenues, low in Supplementary Requisition revenues, high in elementary expenditures, high in junior high school expenditures, low in senior high school expenditures.

c. Medium sized districts differed from others in their pattern of revenues and expenditures. As compared to the overall means, these jurisdictions were: low in Supplementary Requisition revenues, high in ECS expenditures, high in capital expenditures.

d. Urban area divisions, counties and districts also followed a distinctive pattern of revenues and expenditures. As compared to the overall means, these jurisdictions were: low in Other Provincial Grants revenues, high in Supplementary Requisition revenues, high in ECS expenditures.

3. CORRELATION AMONG REVENUE AND EXPENDITURE CATEGORIES

a. In general, special purpose revenues were highly correlated with expenditures for that purpose, i.e., the proportion of expenditures associated with transportation was highly correlated with the proportion of revenues associated with transportation.

b. The proportions of revenues based upon the number of elementary students, junior high students and senior high school students were highly correlated with the proportions of expenditures for these student categories, but only minimally correlated across student categories. The senior high school revenues and expenditures appear to be most independent of the other two levels.

c. The proportions of funds received for Special Education, Trainable Mentally Handicapped (TMH), Learning Disabled, EOF and ECS appeared to be highly intercorrelated. In addition, those proportions were highly correlated with the proportion of expenditures for ECS and Special Education programs, elementary education program, and Community Services.

The views of school jurisdiction officials might be helpful with the interpretation of some of these findings.

F. Recommendations

1. The trends in revenues and expenditures should be examined in relation to the policies of the Government of Alberta and Alberta Education.

2. The patterns of revenue and expenditure suggest that some form of differential funding might be based on jurisdiction type, size and location.

III. TRENDS IN ALBERTA FISCAL EQUALIZATION GRANTS

The researchers state that the provincial system for financing public education is dedicated generally to providing a quality educational experience throughout the province. There are of course, common factors that can be identified, such as legal provisions in school statutes, an Alberta-wide basic curriculum, a system of rules and regulations, special services provided by Alberta Education, and a basic educational grant system. This last factor provides for a substantial portion of educational costs, yet few would contend that resulting jurisdiction operations are identical.

The paradox is that equal treatment, unless the parties are already on an equal footing, simply perpetuates and may even exacerbate existing inequalities. Recognition of this fact led in the past to foundation program funding being supplemented by developing a system of special grants.

The special grants are clearly interventions in the operation of the basic financing system, with the intent of fitting fiscal allocations more closely to the reality of jurisdiction circumstance than is possible through reliance solely upon lump sum payments.

Currently, a number of grants apparently designed to move toward fiscal equalization are in place. Some are designed as continuing or annual grants, while others are essentially one-time provisions to cushion necessary adjustments, although allocation may extend over more than one year.

An implicit assumption appears to be that what is generally true of a class of special conditions is true in each specific case. Thus the argument that small schools are generally somewhat disadvantaged financially leads to the conclusion that each small school is necessarily so disadvantaged.

Generally, eligibility for grants stems from definitional criteria, without reference to any validity test of disadvantage. There is also a very real possibility that calculating grants in isolation from one another could produce a cancelling effect. Also, the grants can be awarded only if the jurisdictions apply for them. Currently, belated applications for the immediately-preceding year are accepted and funds allocated. Even with prodding from Alberta Education, it would seem that some jurisdictions eligible for grants may not apply for them. The number of jurisdictions not applying, however, is extremely low.

A potentially critical concern is the process employed to determine the appropriate sum of money to support any particular special grant fund. Though the aim is equalization of educational opportunity throughout the province, the degree of achievement of that aim is still not fully known. The measurement of both need and need satisfaction can be at best indirect and uncertain. Existence of selected specified conditions serves as an indicator of need, while allocation of a sum of money serves as an indicator of that need's being met. Necessary process changes are assumed, as is a corresponding change in program and output.

A. Operational Matters

Situational factors produce differences in educational expenditures as expressed in either per pupil cost (based on aggregated total cost) or per item or type of item cost. They also produce differences in local ability to pay as expressed in the assessed value of real property per pupil and in local effort expended as expressed in mill rates.

Through the SFPF instructional grants system, provincial wealth is redistributed by collecting money where it is located and employing it where the educational need exists, the latter measured by the number of children to be educated. Equalization occurs on an ability to pay basis, since the children are not always located where greatest wealth exists.

Weighted flat grants recognize differences in the cost of educating sub-sets of students, such as elementary pupils, junior high school students, senior high school students or those with specified handicapping conditions. The weighted flat grant is varied to provide what is deemed to be a "fair" distribution of the resources, given these recognized differences.

Recognition of special conditions or differences other than those covered through flat grant or weighted flat grant provisions has led to the design and implementation of a number of "equalizing" grants intended to ameliorate these specific, newly-recognized inequalities. An example of an equalizing grant would be the Small School Assistance Grant. (SSAG).

B. Methodology

Initially, the examination was to cover four grants: Supplementary Requisition Equalization Grant (SREG), Small Schools Assistance Grant (SSAG), Small Jurisdiction Grant (SJG), and Declining Enrolment Grant (DEG). The review was extended to cover education grants labelled "Fiscal Equalization Grants" by the Government of Alberta. The analysis focused on 1972-80, with particular attention being given to 1972, 1975 and 1979.

In 1972, two grants were in operation — Location Allowance and Incremental Grants to School Boards. In 1975, four more had been added — SSAG, SJG, DEG, and SREG. In 1979, one addition had been made — Private School Opening (PSOG) Grant to School Boards.

The Teacher Housing Unit Grant, in place since 1977, is not covered in this survey.

Alberta Education ledger sheets for 1972-79 were the primary sources. In order to provide a common base for comparison among jurisdictions, the grants received by each school jurisdiction were divided by the eligible enrolment in that jurisdiction.

C. Effects

This report aims to examine the recent history of these Fiscal Equalization Grants and describe what has happened, and to attempt to determine their operational impacts upon educational finance in Alberta. Summary tables were constructed for 1972, 1975 and 1979 because 1979 was the most recent year with complete data, 1972 was the starting point for the study, and 1975 was the midpoint year.

There is a clear trend toward increasing varieties of fiscal equalization grants. A concurrent trend is that of increasing numbers of jurisdictions receiving allocations. (See Tables III.33 to III.35, pages 83 to 94.) The total number of jurisdictions receiving allocations from one or more of these grant provisions was 58 in 1972, 133 in 1975 and 138 in 1979.

D. Tests of Fiscal Equalization Grants

1. PARTICIPATION

One operational test of provincial efforts to achieve fiscal equalization is that of participation, i.e., numbers of jurisdictions participating or the range of participation as shown by the number of different grant allocations received. The evidence is that most jurisdictions are involved and also that many jurisdictions receive allocations from more than one variety of fiscal equalization grant. For 1979, almost all of Alberta's operating school systems — 138 of 145 — received allocations from one or more of these fiscal equalization grants.

It is clear that even without reference to dollar amounts, the Fiscal Equalization Grants had considerable impact upon Alberta school jurisdictions.

2. ABILITY TO PAY

Those jurisdictions with large equalized assessments should receive smaller per-pupil allocations than those school systems with lower equalized assessments. This criterion is one of the tests of effect of the participation in Fiscal Equalization Grants. The allocations from each grant on a per pupil basis were plotted against the amount of equalized assessment per pupil.

3. NEED

Larger enrolment jurisdictions would receive relatively smaller per pupil allocations because of the economies of scale principle.

TABLE III.12

Jurisdictions Receiving Fiscal Equalization Grants, 1979

Title of Grant	Recipient Jurisdictions
Supplementary Requisition Equalization Grant (SREG)	106
Small Schools Assistance Grant (SSAG)	109
Small Jurisdictions Grant (SJG)	79
Declining Enrolment Grant (DEG)	71
Location Allowance Grant (LAG)	52
Private School Opening Grant (PSOG)	18
Incremental Allocations Grant (IAG)	9

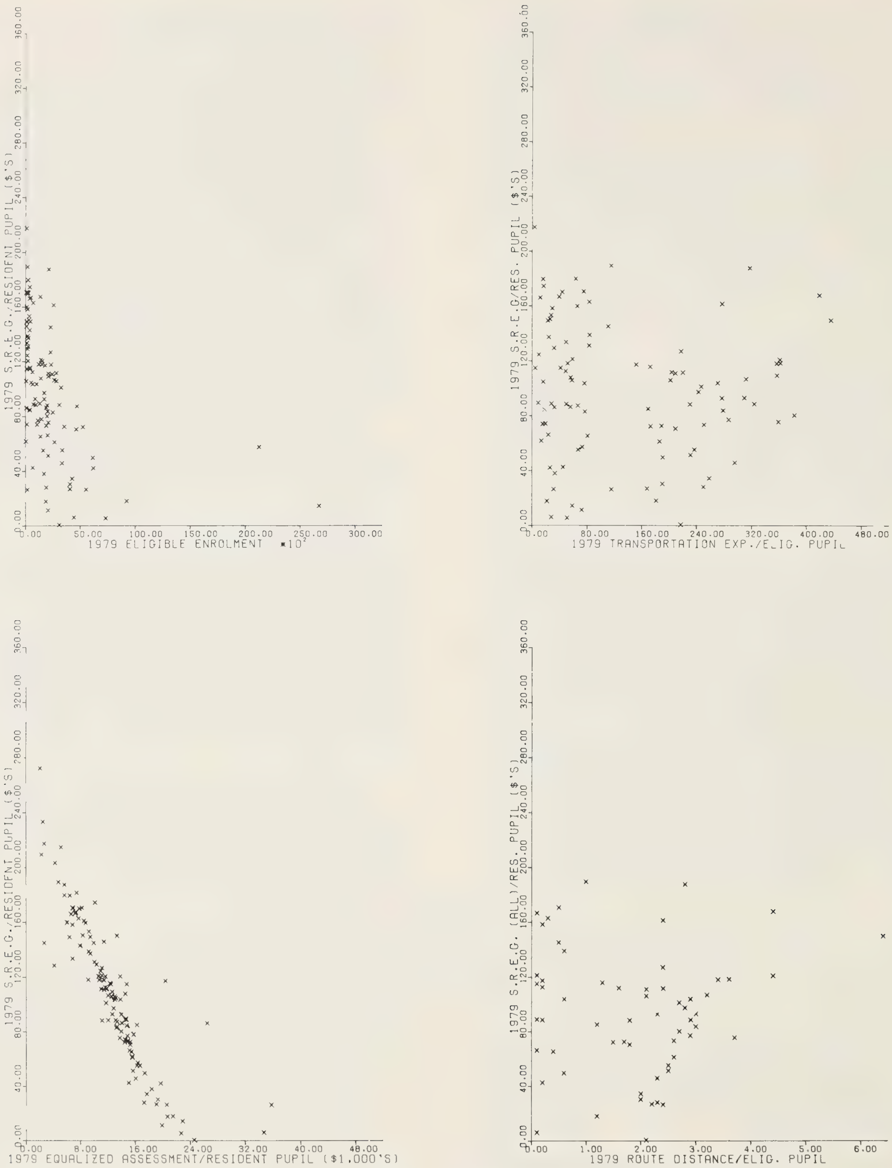

FIGURE III.1

Tests of Equalization Effects of the Supplementary Requisition Equalization Grant

4. SPARSITY

Transportation Expenditures per Pupil and 1979 Route Distance per Pupil were two different formulations of a sparsity criterion. For these two formulations, a positive relationship between the amount of the grant allocations and each of the two elements should exist.

In order to aggregate the data for the province as a whole, graphic representation for all Alberta jurisdictions qualifying was prepared, for each of the grants separately by year, as well as for the yearly totals, using the "ability to pay", "need", and "sparsity" criteria. In addition, to illustrate relationships in the data, a "least squares" approach was used to plot a line of best fit using both linear and curvilinear specifications for the pairs of variables mentioned above. This summary report presents only a sample of these graphs: Figure III.1. Tests of Equalization Effects of the Supplementary Requisition Equalization Grant; Figure III.2. Test of Equalization Effect of the Small Jurisdiction Grant. All graphs are published in the complete report.

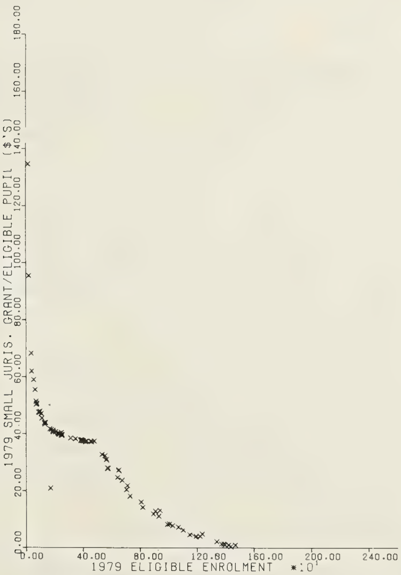

FIGURE III.2

Test of Equalization Effect of the Small Jurisdiction Grant

E. **Selected Findings**

Figure III.3 presents a digest of the interpretations of the graphs.

SREG seems to do quite well what it was designed to do: produce an equalizing effect on the ability to pay criterion. It is relatively insensitive to the other jurisdiction characteristics employed as tests.

SSAG, while apparently performing somewhat as designed, shows some indication of sensitivity to secondary factors. What may be revealed on these tests is the lack of any strong relationship between number and size of small schools, and each of ability to pay and total jurisdiction size.

SJG is relatively insensitive, perhaps even with a slight negative reaction, to tests other than that of eligible enrolment, which criterion it meets almost ideally.

DEG does not appear to be equalizing according to these tests.

Location Allowance appears not to suit the logic underlying the criteria.

PSOG is event-specific rather than a continuing allocation. Its intent seems to be to cushion the effects of a change in circumstance to allow the jurisdiction to adjust, rather than to provide a general equalizing effect.

F. **Summary**

The tests reveal that not all of the Fiscal Equalization Grants are in fact producing general equalization impacts. It appears that in order to exert a general effect, a grant must apply to a variable or characteristic that is common to all jurisdictions but ranges along a continuum, such as size, which can vary from large to small. Such variables are continuous, and a formula designed to counteract or compensate for the effects of differences on the specific characteristics can deal with them. Such a formula can deal with the entire range of differences, or a small grouping within the range.

Another type of variable appears to be part of the current grants system: event-specific rather than general. These variables either do or do not exist within a jurisdiction, for example, the opening of a private school. While this event could occur in and thus affect any jurisdiction, the likelihood that it will occur in all jurisdictions in a given year or in one jurisdiction in every year is very low. Thus, each occurrence of the event can be treated as a one-time problem.

FIGURE III.3

Findings of the Relationships among the Four Test Criteria, the Fiscal Equalization Grants, the Total Grants Amounts, and Large Area - Small Area Jurisdictions

Test Criterion / Title of Grant	Ability to Pay	Need	Sparsity	
			Route distance/ pupil	Transportation expense/pupil
Supplementary Requisition Equalization (Fig. III.1)	strong equalizing tendency	poor performance — little relationship; equalizing tendency slight at best	no consistent relationship	no consistent relationship
Small Schools Assistance	poor performance, slightly counter to theoretically "correct"	in line with economies of scale but very scattered	creditable performance; reasonably accepted	poorer than route distance criterion
Small Jurisdiction	slight tendency to run counter to the expected relationship	excellent correlation (Figure III.2)	no relationship	runs counter to expected performance
Declining Enrolment	disequalizing tendency shown, counter to expectations	overall tendency as desired, but many divergences	some tendency to appropriate performance	disequalizing impact; number of divergent cases
Location Allowance	counter to the desired relationship; disequalizing effect	slight tendency toward equalization but some very divergent cases	no discernible relationship	generally, but not always, good
Private School Opening	counter to the hypothesized relationship; great scatter suggests no relationship	little relationship between enrolments and criterion	general tendency to meet hypothesis	general tendency to meet hypothesis
Incremental	The purpose of this grant is not directly to achieve fiscal equity on a fiscal ability criterion, but to give specific attention to specific problems. Since few jurisdictions qualify annually for this grant (Northland S.D. and Fort Vermilion S.D. have been the main beneficiaries), the analysis of the grant according to "Ability to Pay" was not meaningful. For this reason, its impact as part of the total of all equalization grants was examined.			
Total of All Grants	1972 and 1973 showed negative relationship with criterion; tendency is to an equalizing effect	economies of scale in effect; smaller jurisdictions receive higher per pupil allocations	little proof of a very strong relationship with the criterion	somewhat counter to agreement with criterion; 1979 almost random
Large Area vs. Small Area Differences	large area school systems less able to pay and so receive greater per pupil allocations; small areas receive less, but with great disparities within the small area group	large area school systems met the criterion better than the small area	criterion is a poor predictor of total grants received for both types	criterion tends to be met well

Since commonly-held jurisdiction characteristics are different from event-specific conditions, it may be desirable to separate grants designed to apply to all jurisdictions from those designed to deal with relatively unique, perhaps temporary, characteristics.

G. **Conclusions**

If the rationale underlying the use of the four tests (participation, ability to pay, need, sparsity) is defensible, then the aggregate equalizing effect of the seven grants (SREG, SSAG, SJG, DEG, LAG, PSOG, IAG) appears to be minimal, with a few notable exceptions (SREG, SJG) for specific tests. However, some of these grants appear inappropriately categorized under a general fiscal equalization label. In particular, both DEG and PSOG seem designed as specific to particular events occurring only in some jurisdictions in some years. The Incremental Grant applied to circumstances not generally prevalent. Grouping these grants with the others may be an unfair test of each type.

Because the aggregate of all grants tends to eliminate any specific trends that grants may have singly, the suggestion is that an interactive effect exists such that the equalizing effects of certain individual grants appear to be neutralized by others.

Concluding comments on four general aspects of grants-in-aid follow:

1. ECONOMIC AND POLITICAL RATIONALITY AS BASES FOR FISCAL EQUALIZATION GRANTS

Special grants in an educational financing system can be viewed as intended interventions into the manner in which the financing system has been operating. A primary aim of modern public education financing systems is equalization of educational opportunities. Interventions are founded upon perceptions of unequal impacts of the existing financial system upon particular types of districts. This logic holds if the goal is equalization of educational opportunity, if the process focuses upon economic rationality, and if the individual jurisdictions decide on specific educational means to be purchased.

There are, however, types of rationality other than economic. For example, there may be a political rationality that must be observed such as placing a high value upon maintaining to the degree possible, all existing school districts, without regard to economies of scale. A decision against further amalgamation might preserve some less efficient or less economic units. In this instance, the total education cost might either increase or remain the same, but the amount of education "purchased" might decrease. A measure of dispersion applied to expenditures should then reveal a greater standard deviation from the mean than if economic rationality were the primary goal.

2. THE USE OF INCENTIVE GRANTS

Another goal of financing goes beyond equalizing expenditure capabilities while still leaving the specific educational means to the judgment of recipients. This goal might be stated as a desire for qualitative improvements, focusing directly upon program change. Such a goal is usually accompanied by an incentive grants system whereby the funds are supplied if the recipient agrees to utilize them in specified programs or operations.

Political rationality and program changes dependent upon financial assistance obviously have the potential to counteract some of the equalizing effects of the general financing provisions. Designed as they are to accomplish different goals, counteraction is an obvious consequence.

3. IMPACT LEVEL WITHIN THE SYSTEM

Another important variable is the level within the system to which intervention is directed. Those with the intervention aimed at the district level tend to have effects pervading the district. Those at the individual school level impact primarily there and work to differentiate that school from others in the same or another jurisdiction. The same effect results from intervention at a specific program level within a school. By entering the system at different levels, then, interventions may also produce a disequalizing effect upon the basic financing program which enters at the school district level.

Political rationality, if consistent, can be built into the system. For example, all existing districts may be defined as necessary districts, which would result in equalization efforts. Such procedure side steps the issue of effectiveness and avoids the implicit necessity to define standards for minimal programs. However, in instances where the goals change over time, this dynamic aspect inevitably negates some of the impact of the actions determined through an economic rationality approach.

4. FISCAL AND PROGRAM EQUALIZATION

Analysis of the impact of different educational finance grants can be conducted independently. Since analysis must produce correlations that are less than perfect because of the interactive effects of the grants, some of the actual impact produced will remain concealed. This appears likely to hold true even if all grants were aggregated and this aggregate effect upon equalization examined. Some grants, although included in the category of fiscal equalization grants, appear not intended to produce general equalization in the economic sense, so that their effects, when aggregated with grants clearly so intended, would be to counteract equalization.

Another aspect of the problem of analysis lies with the assumptions. If the indicator of equalization success is equality of fiscal resources, the latter is much easier to measure, though not necessarily more accurate, than equalization of program provided. Fiscal equalization in a resource sense assumes like expenditures will be made to produce like programs at like costs. Equalization of expenditures assumes like costs that can produce like programs as well. Equalization of programs would require evidence that like programs were supplied and then the costs of providing these programs were met, probably with an assumption that operational efficiencies were at the same level in the several jurisdictions.

However, costs are not uniform throughout the province and so purchasing power across the province is unequal. Economic rationality would suggest that equalization efforts designed to achieve equality in the program sense would need to make allowance for such differences in purchasing power. The new revised Alberta Education Price Index (see Chapter VII of this summary report) will be of great assistance in regionalizing prices and therefore grants.

IV. **CURRICULUM TRENDS IN ALBERTA**

This section contains information on curriculum changes in Alberta schools during 1970-80, and some estimates of probable changes in the next decade. The section is divided into six parts.

A. **The Research Questions**

Following the preliminary examination of existing data, four questions were formulated:

1. What changes in course offerings and enrolments have occurred in Grades 10-12 during 1970-80?
2. What changes in course offerings have taken place in Grades 7-9 during 1970-80?
3. What changes in course offerings have taken place in Grades 1-6 during 1970-80?
4. What changes in course offerings are likely to occur in Grades 1-12 during the next decade?

It should be noted that Early Childhood Services programs were not included in the study, nor were specially funded programs such as Educational Opportunities Fund or Learning Disabilities Fund. Also, the questions implied that course labels, e.g., English 30, Social Studies VI, would be accepted at face value and that no data would be sought at this time on the content of specific courses. (See "Measuring the Scope and Depth of Alberta School Programs", Chapter IX of this report.)

B. **Data Sources and Methodology**

For senior high schools, the Annual Reports of Alberta Education provided data on enrolments in courses each year and also on total enrolments in each of the three grades of senior high school.

For junior high schools, copies of the Form A information stored in Alberta Education files were used.

For Grades 1-6, telephone interviews of principals who had been in their present appointments for most of the 1970s were used to obtain data on courses outside the "core" of elementary subjects.

A focused group interview in December 1980 of a group of senior officials of the Curriculum Branch of Alberta Education, a senior administrator of a curriculum and instruction department in a large urban school district, and two members of the project team was called to obtain opinions about events of the past decade, and conjectures about probable developments during the 1980s.

Before data collection began, the intention had been to rely somewhat on computerized files containing Form A information about senior high school enrolments. However, because such files covered only the last three to four years of the 1970s, the information provided in the Annual Reports of Alberta Education gave better coverage across the decade, even though it was clear that information on a school or jurisdiction basis would not be available from that source.

A random representative sample, in terms of type of school organization and type of jurisdiction, of schools which contained Grades 7-9 was drawn. Then the actual copies of Form A for those schools were obtained from Alberta Education.

Because no data currently available from provincial or regional office files dealt with Grades 1-6 subject areas, a random representative sample was used for telephone interviews in December 1980. The list of operating schools for 1980-81 and the lists for the early years of the decade were used to develop a sample that would include mainly principals who had been in their present position for most of the years of the decade.

C. Results

1. SENIOR HIGH SCHOOL

The data provided in Tables III.13 to III.15 show that a substantial number of changes occurred in course offerings, in Grades 10-12 during the 1970s:

Academic courses established — 87, mainly in
- second languages
- religious studies
- social sciences

Courses deleted — 88, mainly in
- home economics
- industrial arts

Courses offered in both 1969-70 and 1978-79 —76, with major changes in enrolment patterns of

increases — physical education
decreases — mathematics
French
physics.

2. JUNIOR HIGH SCHOOL

This study found no indication that course offerings in Grades 7-9 had changed during the decade. This finding should be treated with some caution, however, because of the small data base for this part of the analysis. Programs varied more from school to school and in relation to enrolment than from the beginning to the end of the decade.

Core subjects remained the same, with the exception of identifying Physical Education and Health separately at the beginning of the decade and in combination at the end.

The standard package of "A Options" most commonly offered included: Home Economics/Industrial Arts, Art, Drama, French, Music (instrumental and/or choral), and occasionally German or Ukrainian.

"B" Options were essentially extensions of the core program subjects, often involving the same staff members. Outdoor Education and Perspectives for Living appeared in the mid-1970s.

Since very limited data were available on Non-Graded Options, it was impossible to determine any particular trends.

Language Arts received the greatest allotment of teaching time of all subjects offered. Mathematics, Science, and Social Studies received about three-fourths of the Language Arts allotment throughout the decade. The other core subjects were: Health and Guidance, about one-fifth of Language Arts allotment; Physical Education, about two-fifths of Language Arts allotment.

The "A" Options fell between 27% and 60% of the time allotted for Language Arts, with a mean of approximately 50%.

Time allotments for "B" Options fell between 20% and 45% of that allotted to Language Arts.

There were no significant changes in programs or time allotments per subject as reported by junior high schools throughout the decade.

3. ELEMENTARY SCHOOL

Courses in second languages and environmental education were the most frequently reported additions during the decade. There was no indication that any significant deletions in elementary school course offerings had occurred.

D. Conclusions

Several tentative conclusions have been drawn:

1. At the senior high school level, there has been considerable change in course offerings and enrolment patterns.
2. At the junior high school level, there was little change in course offerings.
3. In Grades 1-6, there has been change only in terms of increased offerings in second languages and environmental education.
4. The data base for examination of curriculum trends in Alberta and for consideration of yearly happenings is of mixed quality. For Grades 10-12, the data base is reasonably good and is being improved as the computerized file is implemented. At the junior high school level, the data are not available for the first two-thirds of the 1970s, but are available from the

TABLE III.13

Courses Added in Grades 10-12 between 1969 and 1978

Full Title of Course	Enrolment in Course	Course Enrolment as Percentage of Grade Enrolment[1]
Accounting 10	16410	44.53
Accounting 20	9282	27.34
Applied Sociology 30	972	3.03
Aspects of Living 15	18	0.05
Business Procedures 20	2392	7.04
Business Foundations 10	4927	13.37
Business Foundations 30	999	3.11
Canadian History 20	676	1.99
Clothing and Textiles 10	3660	9.93
Clothing and Textiles 20	1656	4.88
Clothing and Textiles 30	694	2.16
Communications 21A	2666	7.85
Communications 21B	1528	4.50
Comparative Government 20	180	0.53
Computing Science 30	259	0.81
Contemporary Western Philosophy 20	75	0.22
Cree 15	27	0.07
Cree 25	3	0.01
Cultural and Physical Anthropology 30	727	2.26
Cultural Studies 15	132	0.36
Cultural Studies 25	44	0.13
Data Processing 20	1123	3.31
Driver Education 10	6749	18.32
Economics for Consumers 20	1239	3.65
Experimental Psychology 20	664	2.07
Food Science 10	7495	20.34
Food Science 20	2708	7.98
Food Science 30	1062	3.31
French 11	2953	8.01
French 21	1211	3.57
French 25	1	0.00
French 31	817	2.54
General Business 15	146	0.40
General Psychology 20	8448	24.88
General Sociology 20	5686	16.75

TABLE III.13 (continued)

Full Title of Course	Enrolment in Course	Course Enrolment as Percentage of Grade Enrolment[1]
German 31	9	0.03
International Politics 30	134	0.42
Introduction to Modern Languages 15	25	0.07
Italian 15	95	0.26
Italian 25	59	0.17
Italian 35	25	0.08
Langue et Litterature 10	284	0.77
Langue et Litterature 20	219	0.64
Langue et Litterature 30	189	0.59
Law 30	986	3.07
Literature 21A	1554	4.58
Literature 21B	1015	2.99
Local & Canadian Geography 20	3340	9.84
Macro-Economics 30	1413	4.12
Marketing 20	1634	4.81
Marketing 30	273	0.85
Mathematics 13	11882	32.25
Mathematics 15	9208	24.99
Mathematics 23	9418	27.74
Mathematics 25	3796	11.18
Mathematics 31	3697	11.51
Mathematics 33	6353	19.78
Micro-Economics 30	1420	4.42
Modern Living 10	1255	3.41
Modern Living 20	698	2.06
Modern Living 30	734	2.28
Music 12	453	1.23
Origins of Western Philosophy 20	46	0.14
Personal Psychology 20	6706	19.75
Perspectives for Living 15	979	2.66
Philosophies of Man 30	174	0.54
Physics 22	221	0.65
Physics 32	156	0.49
Political Thinking 20	69	0.20
Polish 15	14	0.04

TABLE III.13 (continued)

Full Title of Course	Enrolment in Course	Course Enrolment as Percentage of Grade Enrolment[1]
Polish 25	4	0.01
Polish 35	8	0.02
Religious Meanings 20	291	0.86
Religious Ethics 20	346	1.02
Religious Studies 15	5760	15.63
Religious Studies 25	4495	13.24
Religious Studies 35	2201	6.85
Sociological Institutions 20	1881	5.54
Spanish 14	46	0.12
Special Projects 10	3924	10.65
Special Projects 20	3016	8.88
Special Projects 30	2366	7.37
Ukrainian 31	11	0.03
Western Canadian History 20	1142	3.36
World Geography 30	1660	5.17
World History 30	282	0.88
World Religions 30	356	1.11

Source: Annual Reports of the Alberta Department of Education for 1970 and 1979.

[1] Grade 10 enrolment — 36,849; Grade 11 enrolment — 33,956; Grade 12 enrolment — 32,124; all in 1978.

Note: In addition to these 87 academic courses added in Grades 10-12 between 1969 and 1978, a wide range of industrial education courses was added, covering both vocational education and industrial arts. More than 190 industrial education courses are currently offered.

TABLE III.14

Courses Deleted in Grades 10-12 between 1969 and 1978

Full Title of Course	Course Enrolment	Course Enrolment as Percentage of Grade Enrolment[1]
Arts and Crafts 10	166	0.54
Arts and Crafts 20	39	0.15
Arts and Crafts 30	11	0.04
Automotives 10	106	0.34
Automotives 20	36	0.14
Automotives 30	17	0.06
Automotives 21	39	0.15
Biology, Experimental 30	127	0.47
Biology 36	253	0.93
Bookkeeping 10	8409	27.27
Bookkeeping 20	2642	9.92
Business Fundamentals 10	3455	11.20
Business Operations 30	991	3.65
Business Seminar 30	1	0.00
Chemistry, Experimental 30XE	56	0.21
Chemistry 36	95	0.35
Child Care & Home Nursing 10	119	0.39
Clerical Practice 20	2564	9.63
Clothing Selection & Design 20	40	0.15
Drafting 10	1355	4.39
Drafting 20	365	1.37
Economics 30	4203	15.49
Electricity 10	74	0.24
Electricity 21	20	0.08
English 36	535	1.97
Fabrics 10	4191	13.59
Fabrics 20	1398	5.25
Fabrics 30	452	1.67
Foods & Nutrition 10	2824	9.16
Foods & Nutrition 20	608	2.28
Foods & Nutrition 30	155	0.57
French (Old) 30	5123	18.88
French (New) 36	91	0.34

TABLE III.14 (continued)

Full Title of Course	Course Enrolment	Course Enrolment as Percentage of Grade Enrolment[1]
Geography 20	3065	11.51
Geology 20	2	0.01
German 36	3	0.01
Home Economics 10	732	2.37
Home Economics 11	93	0.30
Home Economics 21	554	2.08
Home Economics, Crafts 10	161	0.52
Home Economics, Furn. 20	192	0.72
I.A., Electronics 10	601	1.95
I.A., Electronics 20	122	0.46
I.A., Electronics 30	20	0.07
I.A., General 10	3971	12.88
I.A., General 20	1151	4.32
I.A., General 30	183	0.67
I.A., Graphic Commun. 10	658	2.13
I.A., Graphic Commun. 20	68	0.26
I.A., Graphic Commun. 30	42	0.15
I.A., Materials 10	869	2.82
I.A., Materials 20	216	0.81
I.A., Materials 30	42	0.15
I.A., Power Mechanics 10	706	2.29
I.A., Power Mechanics 20	169	0.63
I.A., Power Mechanics 30	43	0.16
Language 21	1636	6.14
Latin, Experimental 30	2	0.01
Literature 11	2365	7.67
Literature 21	10163	38.16
Mathematics, Experimental 30E	248	0.91
Mathematics 36	102	0.38
Mathematics, Calculus 31C	4106	15.13
Mathematics, Matrices 31M	101	0.37
Mathematics 31	14	0.05
Mathematics 36	22	0.08

TABLE III.14 (continued)

Full Title of Course	Course Enrolment	Course Enrolment as Percentage of Grade Enrolment[1]
Mathematics 11	3177	10.30
Mathematics 21	2827	10.62
Mathematics 14	1678	5.44
Merchandising 20	1682	6.32
Merchandising 30	248	0.91
Metal Work 10	5	0.02
Needle Work 10	97	0.31
Physical Education 10A	715	2.32
Physics, Experimental 30E	54	0.20
Physics 36	93	0.34
Psychology 20	8316	31.23
Russian 30	4	0.01
Science 14	1292	2.16
Science 15	667	4.19
Shorthand 10	1968	6.38
Shorthand 21	88	0.33
Social Studies 36	2243	8.27
Spanish 30	2	0.01
Spanish 36	1	0.00
Ukrainian 36	2	0.01
Woodwork 10	205	0.66
Woodwork 21	30	0.11

Source: Annual Reports of the Alberta Department of Education for 1970 and 1979.

[1] Grade 10 enrolment — 30,837; Grade 11 enrolment — 26,631; Grade 12 enrolment — 27,138; all in 1969.

TABLE III.15

Courses Offered Throughout the Seventies

Complete Course Title	Enrolment in Course 1969	Course Enrolment as Percentage of Grade Enrolment, 1969[1]	Enrolment in Course 1978	Course Enrolment as Percentage of Grade Enrolment, 1978[2]	Difference 1969-1978
Accounting 30	634	2.34	3128	9.74	7.40
Agriculture 10	43	0.14	592	1.61	1.47
Agriculture 20	14	0.05	40	0.12	0.07
Agriculture 30	2	0.01	2	0.01	0.00
Art 10	5803	18.82	8818	23.93	5.11
Art 20	1483	5.57	3311	9.75	4.18
Art 30	573	2.11	1568	4.88	2.77
Art 21	297	1.12	653	1.92	0.81
Art 31	72	0.27	376	1.17	0.91
Biology 10	20048	65.01	25336	68.76	3.74
Biology 20	13621	51.15	18303	53.90	2.75
Biology 30	10854	40.00	13452	41.88	1.88
Business Machines 22	310	1.16	754	2.22	1.06
Business Machines 30	2699	9.95	1521	4.73	-5.21
Chemistry 10	20628	66.89	23945	64.98	-1.91
Chemistry 20	15627	58.68	17315	50.99	-7.69
Chemistry 30	4912	18.10	8039	25.02	6.92
Chemistry 30X	6610	24.36	4295	13.37	-10.99
Drama 10	3314	10.75	4635	12.58	1.83
Drama 20	929	3.49	1772	5.22	1.73
Drama 30	325	1.20	845	2.63	1.43
English 10	22361	72.51	25248	68.52	-4.00
English 20	16937	63.60	19991	58.87	-4.73
English 30	17787	65.54	19512	60.74	-4.80
English 13	7913	25.66	12320	33.43	7.77
English 23	7555	28.37	11650	34.31	5.94
English 33	7244	26.69	10651	33.16	6.46
French 10	12978	42.09	8358	22.68	-19.40
French 20	9224	34.64	5236	15.42	-19.22
French 30	3439	12.67	4366	13.59	0.92

TABLE III.15 (continued)

Complete Course Title	Enrolment in Course 1969	Course Enrolment as Percentage of Grade Enrolment, 1969[1]	Enrolment in Course 1978	Course Enrolment as Percentage of Grade Enrolment, 1978[2]	Difference 1969-1978
Geology 10	31	0.10	1	0.00	-0.10
German 10	1157	3.75	1423	3.86	0.11
German 20	562	2.11	810	2.39	0.28
German 30	447	1.65	513	1.60	-0.05
Health & Personal Dev. 10	1535	4.98	1005	2.73	-2.25
Hungarian 15	26	0.08	11	0.03	-0.05
Hungarian 25	10	0.04	5	0.01	-0.02
Hungarian 35	13	0.05	5	0.02	-0.03
Latin 10	168	0.54	161	0.44	-0.11
Latin 20	129	0.48	30	0.09	-0.40
Latin 30	132	0.49	13	0.04	-0.45
Law 20	4575	17.18	8213	24.19	7.01
Mathematics 10	21645	70.19	19643	53.31	-16.88
Mathematics 20	17282	64.89	15209	44.79	-20.10
Mathematics 30	13084	48.21	15713	48.91	0.70
Music 10	1229	3.99	1187	3.22	-0.76
Music 20	399	1.50	564	1.66	0.16
Music 30	163	0.60	299	0.93	0.33
Music 11	1494	4.84	3115	8.45	3.61
Music 21	747	2.81	1860	5.48	2.67
Music 31	357	1.32	992	3.09	1.77
Occupations 10	2619	8.49	2189	5.94	-2.55
Office Practice 30	2097	7.73	1789	5.57	-2.16
Physical Education 10	28411	92.13	34252	92.95	0.82
Physical Education 20	6979	26.21	14316	42.16	15.95
Physical Education 30	1134	4.18	6591	20.52	16.34
Physics 10	13798	44.74	13696	37.17	-7.58
Physics 20	10530	39.54	9021	26.57	-12.97
Physics 30	6069	22.36	6096	18.98	-3.39
Physics 30X	914	3.37	669	2.08	-1.29

TABLE III.15 (continued)

Complete Course Title	Enrolment in Course 1969	Course Enrolment as Percentage of Grade Enrolment, 1969[1]	Enrolment in Course 1978	Course Enrolment as Percentage of Grade Enrolment, 1978[2]	Difference 1969-1978
Reading 10	4438	14.39	3213	8.72	-5.67
Record Keeping 10	1531	4.96	2909	7.89	2.93
Science 11	8300	26.92	10100	27.41	0.49
Shorthand 20	971	3.65	1974	5.81	2.17
Shorthand 30	558	2.06	675	2.10	0.05
Shorthand 31	572	2.11	617	1.92	-0.19
Social Studies 10	29708	96.34	36703	99.60	3.26
Social Studies 20	18717	70.28	22386	65.93	-4.36
Social Studies 30	15057	55.48	14645	45.59	-9.89
Sociology 20	7743	29.08	38	0.11	-28.96
Typewriting 10	22081	71.61	25515	69.24	-2.36
Typewriting 20	7906	29.69	10029	29.54	-0.15
Typewriting 30	3547	13.07	4966	15.46	2.39
Ukrainian 10	350	1.13	347	0.94	-0.19
Ukrainian 20	172	0.65	213	0.63	-0.02
Ukrainian 30	98	0.36	157	0.49	0.13

Source: Annual Reports of the Alberta Department of Education for 1970 and 1979.

[1] 1969 Grade 10 enrolment — 30,837; Grade 11 enrolment — 26,631; Grade 12 enrolment — 27,138.

[2] 1978 Grade 10 enrolment — 36,849; Grade 11 enrolment — 33,956; Grade 12 enrolment — 32,124.

computerized Form A files for the last three to four years.

Data on elementary school courses are notably deficient. No totally reliable data base exists for the 1970s, nor are there any systems in place which would provide such data in the immediate future.

E. **Recommendations**

Based on the conclusions reached in this part of the study, the following recommendations are made:

1. that the data base on course offerings in Grades 1-6 be upgraded;
2. that data on course offerings and enrolments for all grade levels be placed in computer files;
3. that as an aid to planning, a number of indices of curriculum change, student participation rate in available courses, and other possible measures of program activities be developed.

F. **Curriculum Scenarios for the 1980s**

Scenarios describe future possibilities by drawing the logical consequences of one or more sets of assumptions, traced over some specific period. The "logical consequences", however, are not neat self-explanatory deductions, but rely on an extension of what is now true. Inasmuch as "true" is often a very personalized perception, the scenario writer must choose among many different threads of perceived reality as presented by his data.

Granting all these obvious weaknesses, scenario writing may still generate some reasonable concepts of what may follow from present actions. However, *it would be wrong to weigh the worth of scenarios in terms of the accuracy or inaccuracy of the various futures presented*. The major value of the scenario is in forcing an appraisal of the elements, arguments, data, and premises outlined in them. At the very least, this appraisal creates awareness. Furthermore, this awareness and attendant reaction can be helpful in planning and promoting those conditions which will lead to a future desired rather than a future endured.

1. THE ISSUE OF CURRICULUM DECENTRALIZATION

Events in the early 1980s will reflect the coming together of a number of divergent forces generated out of the experiments and experiences of the 1970s. Classified under the general rubrics of Centralization and Decentralization, the dynamics are:

Centralization Dynamics

— Political interest in assessing or measuring various aspects of education. Imposed examinations of outputs (with emphasis on student attainment), assessment of physical means and program content, assessment of teachers.

— Educator exhaustion stemming from the mid-seventies emphasis on having every teacher involved in curriculum development. The exhaustion leads to a passing of the "curriculum torch" to central authorities.

— Trustee demands that the province be responsible for a basic province-wide core curriculum and its finance.

— Political interest in developing a community school philosophy throughout the province, requiring provincial direction.

— Mounting social problems occasioned in part by a rapid, unstable population expansion because of immigration. The necessity of having to deal with special difficulties of ethnic variations, meeting immediate educational needs such as language training, and providing a reasonably common curriculum for students experiencing considerable mobility within and without the province.

— Limited local revenues for curriculum development, given increasing demands on municipal governments for local tax dollars to service expanding population areas.

— The temptation to invest heavily in standardized "teacher proof" technologically sophisticated teaching devices, e.g., a computer terminal at every desk. Uniform hardware begets uniform software.

Decentralization Dynamics

— Political interest in the concept of sub-contracting to local units; political disinterest in becoming involved with contentious educational areas of curriculum development, e.g., family living, especially approaching election times.

— Emphasis on those aspects of the community school which necessitate the use of local input.

— The backlash of educators against "teacher proof" or "assessment driven" curricular materials. Their interest in a mastery of the profession in all its aspects, as well as a fundamental objection to being cogs in a large impersonal curriculum delivery system.

- The reliance on local boards to provide in-service training and support materials for teachers expected to deliver a new curriculum. These activities, or lack of them, have a directive quality which may be at variance with the intent of simple document changes to curriculum, i.e., the textbook could remain the same, but the curriculum guide places emphasis on different aspects of the textbook materials.
- An emphasis on schools' playing a role as societal "half-way houses" in which children are introduced to the working world of rapid change, but within which they experience some of the longer term interests, values and stabilizing factors of a given community.
- The expectation of individuals for broadly based participation in the decision-making process. Although far removed from its heyday in the mid-seventies, the concept remains more than a quaint catchphrase from the past.

Interaction

Three of the possibilities arising from the interaction of these dynamics are:

- A resolution of the forces involved, such that a stasis of sorts is reached. This situation is deemed the most probable scenario, but it is not likely to be reached without some thrusts and counterthrusts in the early 1980s.
- The triumph of the centralization forces and the emergence of a highly centralized curriculum.
- The triumph of decentralization forces.

Scenario 1a — The Resolution of Forces

This scenario is the most likely within the issue of decentralization vs. centralization.

Following an election in Alberta in late 1982 — early 1983, with a change of Minister of Education and rumblings from within the Cabinet, there is an increased effort to undertake assessment practices related to students and program. By the mid-eighties, this movement will have the effect of directing teacher efforts to meeting that part of the curriculum subject to provincial appraisal. However, teacher objections to becoming the target of outside imposed evaluation will become intense. An approaching election helps persuade the government to settle for a window on student progress and avoid teacher evaluation, other than in the consultative mode as practiced by Regional Offices of Alberta Education in the 1970s.

Similarly, other forces of centralization and decentralization will tend to balance off so that the end result is not essentially different from the situation in 1980-81.

While the balance may exist provincially, it is unlikely that it will be homogeneous throughout Alberta. The large and small cities will continue to develop some relief for local curriculum problems. The specific difficulties of providing educational services to a growing migratory population will force such centers to be active in, or at least greatly concerned about, the developmental role. However, the movement toward consortia or cooperative approaches among different local governments and provincial authorities is likely to grow steadily and foster united fronts in curriculum development.

It is thus possible to see a balance achieved through a province-wide situation in which Alberta Education plays a dominant role in rural areas, where restrictions on finances and manpower limit curriculum development; a cooperative role where mutual efforts are advantageous; and a limited role in certain aspects of education where alternative schools and private education facilities flourish.

Scenario 1b — The Triumph of Centralization

This scenario is less likely to occur than the "balance" described above, but it is not an improbable state of affairs. If this scenario unfolds, it is likely to occur after 1985.

Following a period of hesitation in the economic development of the province in the early 1980s, a number of forces coalesce to drive major responsibility for curriculum development firmly into the arms of Alberta Education.

In this scenario, one of the principal forces is the impact of immigration, population growth and related social problems which tend to overwhelm local resources attempting to cope with these challenges. At the same time, technological advances develop means of individualizing instruction to a great degree. A "terminal at every desk" permits children to advance through core programs at their own rate. However, the production of core programs is an expensive, time consuming operation, which is found to be most easily undertaken by a central authority.

The institution of centralized assessment procedures has the effect of guiding programs toward common understandings, skill development and general student learnings.

This script shows little resistance to these centralizing forces. Indeed, there are factors in both local government and the teaching force which assist the process. School board trustees welcome a government move toward a revival of the "School Foundation Plan" for financing education, which means, pragmatically, that the government undertakes to define and finance a basic core of instruction, which local boards may exceed. However, as in the introduction of the original foundation plan in Alberta, the core is of such magnitude that some school systems find it quite reasonable to offer very few additional programs.

The "silent majority" of the mid-seventies now has its day. Once swept along reluctantly by a passionate minority of teachers demanding a great deal of influence in program development, this majority sees teacher involvement as more properly vested in the "how", not the "what" of teaching. Teacher exhaustion, occasioned by years of activity in program development, also contributes. The practice of widespread participation through the curriculum committees of Alberta Education assuages concern that teachers will be driven out of program development. Participation continues, but it is guided by a central hand.

Political forces also push toward more central direction in school affairs. The provincial government of the day is criticized for perceived limitations in its social services programs. Finding that controversial programs such as those related to "family living" are seldom voluntarily instituted where most needed, Alberta Education is given a mandate for more active involvement in developing programs to help young students develop life skills.

The centralizing forces reach their zenith by about 1987. Toward the end of the decade, the pendulum swings back to a more even balance between central and local authorities in curriculum development and control.

Scenario 1c — The Triumph of Decentralization

Although this scenario is the least likely, there are factors which could push strongly toward decentralized curricular development in the province.

The provincial government, perceiving a rising tide of disillusion with public education, presses forward with increased support for private schools, alternative schools, and a modified voucher system. These measures tend to pass responsibility for curriculum to local authorities, where boards and schools find they must compete for students.

Other factors which tend to support a decentralization future are:

— teacher "backlash" against technological advances which limit their role;

— tendency for schools to play a larger role in the care and nurturing of children; this tendency would exist if the child-centered philosophy now apparent in ECS moved on with the children, and if the schools functioned as something of an extended family for the increasingly large proportion of students from single parent homes;

— reluctance of government to become involved with controversial subjects, e.g., evolution vs. special creation;

— financial and manpower stresses imposed on the central authority in attempting to meet curriculum development needs in language immersion training, ESL and other special needs expressed by diverse local areas; while individual areas may need only to develop a few areas of expertise in esoteric curriculum areas, the central authority would require a full slate if control were to remain with Alberta Education;

— where the central authority fails to provide inservice or other training in conjunction with curricular change, local implementation practices tend to direct the nature of change; in effect, local inservice and support materials are interpreted by teachers as the substance of the change.

While the above forces are not to be disregarded, they will become dominant only if and when political decisions are made to avoid government efforts in education, and/or provincial resources become strained, thus limiting central efforts. Neither of these factors is likely within the next five years.

2. THE ISSUE OF SCHOOLING VS. EDUCATION

The following scenarios deal with the issue of "schooling vs. education", which has to do with the role of the school. Education is conceived as the totality of formal and non-formal experiences which prepares citizens for life. Schooling is seen as a formalized subset of "education". Teaching and learning experiences have clearly defined goals established by locally and provincially elected officials, and delivered through a professional teaching force. Schools are deemed accountable for their defined role. Productive non-formal learning experiences occurring within the school setting are considered additional to, but not a responsibility of, the established institution of schooling.

This debate about the role of the school is at least as old as the institution of public education, and has recently been reactivated in Alberta.

Scenario 2a — Role Frustration

In this projection in the early 1980s, efforts, including government policy statements and financial grant strictures, are made to restrict the role of the school to the more formal role of "schooling".

During this period, pressures building on the school for an expanded role include the following aspects:

i. The continued collapse of the nuclear family unit will, both directly and indirectly, require the school to perform an expanded caring or child-centered function. In a direct response, there will be greatly increased demands for school counsellors and, in an indirect manner, teachers will have to learn to cope with increased discipline and social and emotional needs of children in their care. Teachers without these skills will experience increasing frustration, exhaustion and emotional trauma. Teachers will make demands for recognition of this expanded role, and for training and compensation, both in time and dollars.

ii. Parents, frustrated by what they see as a public school system inattentive to the needs of children for enhanced discipline, specialized moral and value training, and other non-schooling elements, will turn more toward private education, which will flourish in part because of a deliberate attempt to play a role in non-schooling objectives. In response, public education will attempt to compete with private education for students.

iii. Various other social agencies, encouraged by government, will attempt to play a larger role in "education". However, such agencies will turn to the schools as the principal means for carrying out their educative roles. Thus schools will experience increased pressure from widely diverse groups for school instruction time. Schools will see more and more groups pressuring both local and provincial governments for an expanded school role in meeting social problems. Teachers will not be social workers, but neither will educational expertise be limited to the exposition of a limited range of academic subjects.

iv. In this speculation, implementing the community school as envisaged by its proponents will give many societal groups the means and encouragement to contribute to the overall educational program. The involvement of school personnel will be cooperative and coordinating. However, as with all organizations which begin with considerable voluntary input and shared authority, there is a transition to more formalized arrangements. Authority tends to become vested in hierarchical structures and the spontaneous input of groups organized into predictable patterns. Thus the school gradually occupies an enlarged and formally structured part of the area called "education".

v. The movement toward expanding the role of the school regarding the handicapped will have inevitable consequences. The definition of handicapped will be expanded, perhaps to the point of including those who suffer from lack of emotional support. Further, by providing care and attention to the handicapped as a necessary accompaniment to formal studies, the school must enter into those areas of learning and experience which are regarded more as "general education" than strict schooling.

These factors tending to expand the role of the school by enlarging the area of education now defined as schooling likely will create by the mid-1980s, a crisis in education, concerning the role of the school. The result will be increasing frustration within the public school systems as they face demands for an enlarged role, but receive neither financial nor moral support from the province. The frustration is likely to lead to the province's reluctantly recognizing the expanded role of schools in the mid-1980s, and acknowledging the need for additional funding. However, spurred on by public interest as evident in election results, the provincial government will again address the larger question of the appropriate role of schools in Alberta society. The likely result is that after the crisis of the mid-1980s, urban schools in particular will receive more central support in delivering expanded educational services.

Scenario 2b — A More Limited Schooling Role

Several factors result in a more limited role in education for Alberta schools:

i. Government pressures, including financial constraints, for schools to reduce their role.

ii. The expansion of private schools which undertake to meet an enlarged definition of schooling; a corresponding withdrawal of public institutions from the areas of moral education, value training and religious-philosophical and mental health considerations.

iii. Direct involvement of community interest groups, social service agencies and various professional interests, such as the medical fraternity in education through facilities and organizations separate from the schools. Where public school facilities are used, clear lines of demarcation are drawn between the formal role of the school and its personnel and the interests of groups which may make use of the same facilities.

iv. This script sees the expansion of post-secondary institutions (including technical and vocational schools) into areas of a social nature, accompanied by a deliberate policy of school systems and teachers to limit their responsibilities to those who are emotionally, socially and physically capable of receiving formal academic instruction.

While factors 1 and 2 may have a reasonable probability of coming into being, factors 3 and 4 do not. Factor 4 in particular is not likely to appear, because it offends both the humanistic nature of teachers and their pedagogical expertise. Teachers do not enter into the profession to see children cast aside, nor are teachers unaware of the prerequisites necessary for learning.

3. THE ISSUE CONCERNING ALBERTA EDUCATION'S ROLE IN STAFF DEVELOPMENT AND INSERVICE TRAINING

Program change includes both a change in documents such as course guides, texts and support materials and often a change in the expertise required of teachers and in the instructional methodology used, calling for instructional development work.

Who is to bear responsibility for "instructing the instructors": Alberta Education, local boards, teachers, or some combination of these interest groups?

The following scenarios portray the more likely and less likely possibilities, respectively.

Scenario 3a — The Consortia Approach

As the province moves closer to the mid-point of the 1980s, strong pressures are exerted upon Alberta Education to play a larger role in staff development and inservice training as a necessary adjunct to increased central control of programs. The principal arguments are that real change comes through a change in people, not documents. Since the central authorities are seen as invoking program control through assessment, course guides and attendant materials, a major degree of responsibility rests with these authorities for "people change".

Counter arguments are that teachers themselves should accept a large measure of responsibility for maintenance of their own professional competence. Teachers respond that their professionalism resides essentially in pedagogical expertise, not in content changes forced upon them by external authorities. Teachers use the analogy that when an airline introduces a new type of aircraft, the professional pilots are not held responsible for the expense of learning to fly it.

Local boards subscribe to the view that it is reasonable for them to have some responsibility with respect to inservice training associated with that part of the curriculum fostered by local boards to meet specific local needs. They argue that it is reasonable to expect Alberta Education to assume a measure of responsibility for inservice caused by centrally-sponsored changes in the core curriculum or options.

Care will be taken by boards not to exclude the teaching profession from assuming some measure of responsibility for inservice work.

In this script, following the pattern established by the Tri-Partite Committee on Inservice Education (created by Alberta Education in 1979 and including representatives from Alberta Education, ASTA and ATA), a consortium comprised of the three bodies, with input from Alberta universities, will undertake various inservice activities in conjunction with curriculum change.

Alberta education will gradually move toward a coordinating role, assuming major funding responsibilities. The ASTA and ATA will provide minor direct funding, but their major contribution will be through the work of their personnel. Boards will receive a nominal reimbursement for the secondment of their professional personnel for inservice work, but will be expected to more than match Alberta Education's dollar contributions with the time and effort of local personnel.

University faculties of education will use the funds generated by the Inservice Consortium to supply direct inservice training, training of inservice "trainers", and research and other development activities. While not the sole source of inservice development work, the universities will be intimately involved.

However, once the Inservice Consortium has become a reality, the seeds for its own decentralization will be planted. Gradually, as expertise in inservice training becomes diffused throughout the province, local areas will undertake enlarged responsibilities, until by the end of the decade inservice training for curriculum implementation will be centered in five major areas: Edmonton and Calgary metro areas; Red Deer; the southern areas, including Lethbridge and Medicine Hat; the northern areas, including Grande Prairie, Peace River, Fort McMurray.

This inservice training will be largely funded by Alberta Education, but to a considerably lesser degree than in the mid-1980s.

Scenario 3b — Central Avoidance of Inservice

In this scenario the key factor rests with a possible decision by the Government of Alberta not to assume major responsibility for both leadership and financing of inservice training to implement curriculum change. Should the government take the position of avoiding a role in inservice training as a means of implementing curricular change, then the onus for, and the operation of, staff development will fall on local government shoulders. The results will be spotty. Large systems will continue to develop support materials and provide some training which will be interpreted in general by teachers as "the curriculum". Minor consortia for inservice and other curricular change/development work will appear. However, without the framework of central support, their efforts and lifespans are likely to be limited.

In smaller centers and rural areas, inservice as a means for ensuring curricular implementation will be virtually non-existent.

This situation is likely to continue until a major curricular issue arises and pressures for active central involvement in inservice become irresistible, such as technological innovation, as in computer assisted instruction.

In any event, the avoidance posture is likely to be short lived at best. It is difficult to see it maintained beyond the mid-point of the decade.

4. CONCLUDING STATEMENT

These scenarios have been presented as a means of assessing and appraising various arguments, data and premises relevant to curricular change in the 1980s.

V. CHARACTERISTICS OF EDUCATIONAL STAFF, TEACHING SITUATIONS AND STUDENT ENROLMENTS

This aspect of the study focused on certain features of the educational system which may be regarded as causes or effects of the funding arrangements. Included are selected professional characteristics of teachers, features of the work assignment, and enrolment patterns. The specific questions addressed were:

- What is the general nature of these characteristics?
- Are there variations in selected characteristics across different types of jurisdictions, professional positions, and grade levels?
- What trends are evident in recent years with respect to changes in these characteristics?

The major purpose of the analysis was to determine whether or not there were variations or trends which may merit further attention in future studies.

A. Data Sources and Analysis

The main data sources for the analysis included the Educational Staff Record data tapes, reports prepared by the Student Records and Computer Services Branch of Alberta Education, monographs published by the ATA, and Annual Reports of Alberta Education. The analysis was limited by certain features of available data, including the lack of data prior to 1975 in a form which is readily amenable to computer processing, lack of data for the early 1970s, and variations in categories used in previous reports and summaries. These features of the data placed major restrictions on what was feasible in determining trends. There is also some question about the reliabil-

TABLE III.16

Distribution of Educational Staff
a — By Position[1]

Position	1975	1977	1979	Net Change
Classroom Teacher	15,823	15,911	15,621	−202
ECS Teacher	505	584	648	+143
Special Education Teacher	904	1,101	1,360	+456
Relieving Teacher	241	271	254	+ 13
Visiting Teacher	51	59	53	+ 2
Home Visiting Teacher	13	23	24	+ 11
Dept. Head/Curricular	577	636	644	+ 67
Librarian	511	520	528	+ 17
A/V Coordinator	173	178	173	0
Work Experience Coord.	76	96	99	+ 23
Guidance Counsellor	486	511	560	+ 74
Vice/Asst. Principal	990	1,039	1,045	+ 55
Principal	1,213	1,268	1,298	+ 85
School Social Worker	13	14	11	− 2
School Psychologist	40	47	45	+ 5
Speech Clinician	18	18	23	+ 5
Hearing Clinician	7	10	7	0
Reading Clinician	83	86	73	− 10
Psychometrician	7	10	18	+ 11
Learning Center Clinician	68	98	99	+ 31
Guidance Administrator	17	15	12	− 5
Pupil Personnel Admin. Asst.	9	6	3	− 6
Pupil Personnel Administrator	15	18	20	+ 5
ECS Administrator	23	31	42	+ 19
Central Office Administrator	171	171	175	+ 4
Consultant	171	178	173	+ 2
Asst./Assoc. Superintendent	68	90	102	+ 34
Superintendent	79	81	77	− 2
Other	576	744	882	+306
Not Specified	203	62	4	−199
Total	23,131	23,876	24,073	+942

[1] Based on reports prepared by Student Evaluation and Data Processing Services Branch, Alberta Education

TABLE III.16 (continued)
Distribution of Educational Staff
b — With Assignment in One School by Type of Position

Position	**1975**		**1977**		**1979**	
Teacher	16,903	97.68%	17,247	97.53%	17,590	97.41%
Admin/Support and Teacher	2,926	95.43%	3,347	94.65%	3,720	94.85%
Admin/Support	1,600	68.00%	1,534	65.78%	1,453	64.61%
Total	21,429	94.30%	22,128	93.95%	22,763	93.93%

ity of the data since inconsistencies become apparent when different sources are used. The inconsistencies, though distracting, appear to be relatively minor and probably had no substantial effect on the overall results.

The analysis consisted primarily of preparing frequency and percentage distributions for each of the variables under consideration for 1975, 1977 and 1979. The analysis also focused on variations across types of jurisdictions, types of positions and grade levels. The jurisdictions were classified as large urban, other urban, counties/divisions, and "other". Three types of positions were defined: teacher, teacher-administrative/support, and administrative/support. The six grade levels were defined as Special, ECS, 1-3, 4-6, 7-9, 10-12.

Changes and trends were determined through comparing percentages, and then either expressing the difference in percentage points or converting to an average annual change.

B. **Results**

Although there are variations over time and across different bases of categorizing the data, the changes are generally neither great nor dramatic. In addition, some changes which appear to be of interest may be based on comparatively low frequencies. Consequently, although data were collected for 1975, 1977 and 1979, we present only 1979 data in most of the charts which follow.

C. **Summary**

One of the major purposes of the analysis was to identify variations in teacher and work situation characteristics across types of jurisdictions, positions and grade levels. This summary is presented in three parts to highlight these variations; the fourth part focuses on trends in selected characteristics.

1. VARIATIONS ACROSS JURISDICTIONS

As might have been anticipated, large urban jurisdictions tended to differ from the other three with respect to a number of characteristics.

In comparison with other types of jurisdictions, large urban districts:
- — employed fewer teachers with less than four years of teacher education (Table III.17);
- — had fewer teachers remain in the same school for more than five years (Table III.18);
- — assigned administrative duties to more teachers;
- — assigned counselling duties to more teachers;
- — assigned time free of duties to fewer teachers;
- — had higher pupil/teacher ratios; and
- — had experienced enrolment declines.

The other urban districts differed from the three other types in only one characteristic: they were more likely to have experienced increases in enrolments.

The counties/divisions differed from others in two main characteristics; they
- — employed fewer part-time staff; and
- — assigned study supervision to more teachers.

When compared to large urban, other urban, and counties/divisions, "other" districts:
- — had more staff with less than two years of experience (Table III.19);
- — provided some time free of duties to more teachers; and
- — had a lower proportion of their enrolments in grades 10-12.

TABLE III.17

Teacher Education of Educational Staff by Type of Jurisdiction, 1979

Years of Education	Large Urban	Other Urban	Counties & Divisions	Other	Total
Less than 4	4.50%	6.51%	11.90%	10.49%	7.67%
4 years	52.32	58.94	62.03	62.27	57.18
5 years	22.63	20.79	16.29	17.45	19.80
6 or more	19.72	13.18	9.20	9.19	14.56
Not specified	0.83	0.58	0.57	0.62	0.69

TABLE III.18

Experience of Educational Staff in Present School by Type of Jurisdiction, 1979

Years of Experience	Large Urban	Other Urban	Counties & Divisions	Other	Total
Less than 2	43.45%	36.06%	34.57%	36.19%	38.94%
2 to 5	35.98	36.53	33.71	30.46	34.93
6 to 10	12.99	16.11	15.63	18.00	14.65
More than 10	7.58	11.30	16.09	15.34	11.49
Average number of years	3.39	4.23	5.02	4.87	4.15

TABLE III.19

Total Experience of Educational Staff by Type of Jurisdiction, 1979

Years of Experience	Large Urban	Other Urban	Counties & Divisions	Other	Total
Less than 2	7.74%	11.12%	14.04%	16.03%	10.89%
2 to 5	20.16	23.46	21.70	21.64	21.25
6 to 10	25.97	23.72	22.96	22.44	24.40
11 to 15	20.81	16.26	14.96	12.70	17.66
More than 15	25.31	25.43	26.34	27.19	25.81
Average number of years	11.15	10.63	10.60	10.49	10.85

TABLE III.20

Teacher Education of Educational Staff by Type of Position, 1979

Years of Education	Teacher	Admin./Support & Teacher	Admin./ Support	Total
Less than 4	9.12%	3.88%	2.62%	7.67%
4	63.85	45.92	23.45	57.19
More than 4	26.28	49.88	73.08	34.46
Not specified	0.74	0.33	0.84	0.68

TABLE III.21

Employment Status of Educational Staff by Type of Position, 1979

Status	Teacher	Admin./Support & Teacher	Admin./ Support	Total
Full-time	93.76%	96.02%	93.22%	94.07%
Part-time	6.01	3.80	6.65	5.71
Not specified	0.23	0.18	0.13	0.21
Total number of educational staff	18,057	3,922	2,256	24,235
Percent of total	74.51%	16.18%	9.31%	100.0%

TABLE III.22

Total Experience of Educational Staff by Type of Position, 1979

Years of Experience	Teacher	Admin./Support & Teacher	Admin./ Support	Total
Less than 2	13.35%	4.51%	2.08%	10.87%
2 to 5	25.05	12.42	6.21	21.25
6 to 10	24.81	26.34	17.82	24.41
11 to 15	15.66	23.33	23.89	17.66
More than 15	21.13	33.40	50.00	25.81
Average number of years	9.65	13.18	16.38	10.85

Since the "other" types of jurisdictions employ less than 7% of the educational staff and enroll just over 6% of all students, the variations may not appear highly significant to others than those directly involved. On the other hand, variations in characteristics of large urban jurisdictions may affect, in one way or another, almost one-half of the school population.

2. VARIATIONS ACROSS POSITIONS

The analysis was carried out for three types of positions: teachers, combined teacher/administrative/support, and administrative/support. In terms of proportions, when compared to staff in the other two positions, more teachers:

— were women;
— obtained initial certification in Alberta;
— held only a bachelor's degree (Table III.20);
— had been with the present board less than five years.

When compared to staff in administrative/support positions and in teaching positions, those with combined responsibilities:

— held less part-time employment status (Table III.21);
— had been in the present school at least five years; and
— were assigned study supervision, work experience, or audio-visual duties more often.

Among the members of educational staff, more of those who held administrative/support positions:

— had responsibilities in more than one school;
— had more than four years of teacher education (Table III.20);
— had more than 10 years of experience (Table III.22);
— were assigned library or counselling duties; and
— had no time free of assigned duties.

3. VARIATIONS ACROSS GRADE LEVELS

Although there were numerous specific differences between and among various grade categories, only some of these marked a particular grade as different from nearly all others. Three of the six grade levels or areas — early childhood services, grades 7-9 and grades 10-12 — have a number of distinguishing characteristics.

Teachers in special education differed from all others in that they were more likely to have small classes.

When ECS teachers are compared to teachers at other grade levels:

— more held part-time employment status;
— more held only a bachelor's degree;
— more had less than five years experience (Table III.23);
— fewer were assigned administrative duties; and
— more were assigned library duties.

Teachers in grades 1-3 were more likely than others to have a single class while grades 4-6 teachers were more likely to have larger average class sizes than teachers at other grade levels.

More teachers in grades 7-9:

— were assigned study supervision;
— were assigned counselling or audio-visual duties;
— had some time free of assigned duties (Table III.24);
— taught multiple classes; and
— were assigned at least seven classes.

Of the teachers assigned to grades 10-12, more:

— had more than four years of teacher education;
— had some time free of teaching duties (Table III.24); and
— were assigned classes of over 30 students.

4. TRENDS

During the period analyzed, there were no dramatic changes in the characteristics considered other than perhaps the decline in large urban enrolments. There was virtually no change with respect to some characteristics such as the proportion of men and women, and the age and experience of staff.

The following were among general trends:

— increases in educational staff have occurred in positions other than that of the classroom teacher in grades 1 to 12;
— the proportion of part-time staff has increased;
— the proportion of women in central office positions has increased;
— the proportion of staff with initial certification in Alberta has increased;
— the proportion of staff with fewer than four years of education has decreased;
— the proportion of staff with less than two years of experience has increased;
— the proportions of staff with two to five years with

TABLE III.23

Total Experience of Teachers by Grade Level, 1979

Years of Experience	Special	ECS	1-3	4-6	7-9	10-12	Total
Less than 2	18.19%	24.09%	12.69%	10.49%	12.34%	7.03%	11.84%
2 to 5	26.25	31.26	23.09	21.21	25.84	16.98	22.85
6 to 10	26.14	23.55	23.07	24.24	26.76	26.79	25.06
11 to 15	11.87	11.23	14.99	17.27	15.60	24.75	16.97
More than 15	17.54	9.88	26.16	26.79	19.46	24.45	23.29
Average number of years	8.50	6.47	10.57	10.94	9.45	11.48	10.26

TABLE III.24

Proportion of Teacher Time Free of Duties by Grade Level, 1979

Percent of Time	Special	ECS	1-3	4-6	7-9	10-12	Total
None	55.77%	74.56%	41.51%	38.72%	26.98%	37.29%	38.09%
1% - 10%	34.86	18.00	50.34	50.77	36.69	9.07	38.15
11% - 20%	7.95	5.28	7.53	9.89	34.05	43.25	22.00
More than 20%	1.42	2.17	0.61	0.54	2.28	10.40	2.74

the present board and in the present school have decreased;

— the proportion of staff who have some time free of duties has increased;

— the proportion of staff who are assigned duties other than administration or counselling has decreased;

— average class size and pupil/teacher ratios have decreased;

— enrolments in large urban districts have decreased while those in other urban districts have increased; and

— enrolments in grades 1-3 have increased while those in grades 4-6 have decreased.

Given the nature of the data and the relatively short time period, these changes and trends must be interpreted with caution. The presence of a trend could be confirmed through checks with the 1980 or 1981 data.

5. TEACHER/CLASS DATA

At the end of this chapter, a number of tables are included which illustrate various aspects of teacher and classroom data. These tables should be consulted for further insights into the characteristics of educational staff, teaching situations and student enrolments.

D. **Conclusions**

1. IMPLICATIONS FOR EDUCATIONAL FINANCE POLICY

a. There appear to be sufficient variations in characteristics across types of jurisdictions, positions and teaching situations to confirm that the educational system cannot be considered uniform or homogeneous with respect to these characteristics.

b. There are changes and shifts in various characteristics over time. The explanations for some of these are fairly obvious; however, there are others which might not have been predicted on the basis of previous trends.

c. Most of the changes and trends appear to be gradual at the provincial level and should permit reasonably accurate projections for a few years. Clearly, there will be floor and ceiling effects in many of the trends, and as a result, long range projections may have limited usefulness. Even for short range projections, there is need for a better understanding of the contributing and causal factors which cannot be determined solely through the manipulation of existing data.

The findings suggest numerous other conclusions about specific features of the educational system; however, more research is required in order to confirm the presence of trends and relationships.

2. IMPLICATIONS FOR FUTURE RESEARCH

Additional studies on these features of the educational system might involve both further work using existing data and the collection of new data through other research procedures. In addition, steps should be taken to ensure an adequate data base for future studies.

E. **Recommendations**

1. The trends and characteristics should be examined in terms of their relevance for educational policy generally and specifically for educational finance policies. This can be done through some conceptual work to develop theoretical connections between characteristics and financial arrangements, and through empirical analysis of the relationship between selected characteristics and educational costs.

2. Variations in the work situations of teachers — time free of assigned duties, nature of duties other than teaching, class size, number of classes, and others — demand further research. The results of this study suggest that there are variations in practice which do not have adequate explanations at this time. As a result, there is need for more intensive analysis of the work situations of teachers at different grade levels, in different schools, and in different types of jurisdictions. The sample for such a study might be selected on the basis of information which could be derived from the Educational Staff Record data file.

3. Enrolment trends and patterns show sufficient variation and have sufficient significance for educational finance to warrant more intensive study. Variations in patterns from jurisdiction to jurisdiction would suggest the desirability of developing individual projections.

4. The Educational Staff Record Form and resulting data file have proven to be useful means of monitoring changes in work situations and teacher characteristics. This information source has high potential for planning purposes and some effort should be made to extend both the type of data collected and routine analysis. Some of the information now collected may have little relevance for educational policy, while there may be possibilities for collecting additional enrolment or work situation information from individual teachers. Procedures should also be established which will permit a comprehensive description of characteristics as well as of trends in selected characteristics on a regular basis.

VI. SUMMARY, PROJECTIONS AND IMPLICATIONS FOR FURTHER RESEARCH

The results of research on educational finance and selected characteristics of the Alberta educational system have been presented. In general, the study reviewed K-12 schooling in the province during the decade of the 1970s for the purpose of developing basic descriptions, identifying variations both over time and at a particular time, and projecting possible developments. Analyses were based on existing data with the expectation that this study would be the first stage of a more comprehensive review of school finance in Alberta; consequently, the development of suggestions for further research was an important aspect of the study.

This final section consists of three major parts: a summary of results, projections, and suggestions for further research. Each of these sections is further subdivided into the areas defined by the major research problems, namely, revenues and expenditures, equalization grants, curricular programming, and characteristics of teachers and teaching situations. The concluding section provides perspectives on both major challenges in financing education and an approach to assessing the consequences of funding arrangements.

A. Summary of Results

The findings of the study provide information on various characteristics, trends in recent years and relationships among variables. As is indicated by the summaries which follow, the emphasis on these aspects differed across the four major areas.

1. REVENUES AND EXPENDITURES

Revenue and expenditure data for 1972-1979 were examined to identify trends, patterns and correlations among various categories. The full time period was considered for analysis of trends; correlations were restricted to 1977-1979 data; and patterns were identified through a Q factor analysis of 1979 data. The general findings were:

- During the time period included in the analysis, for all jurisdictions the proportion of total revenues obtained from the SFPF declined while the proportion obtained from the Supplementary Requisition increased significantly.
- From 1972 to 1979, transportation expenditures increased as a proportion of total expenditures in city districts but decreased in counties and school divisions.
- Patterns of revenues and expenditures in 1979 varied across different types of jurisdictions. For example, counties and school divisions tended to be high in SFPF revenues but low in revenues from other provincial grants; with respect to expenditures, they tended to be low on ECS but high on transportation.
- There were numerous significant correlations among various categories of revenues and expenditures; for example, specific purpose revenues were highly correlated with expenditures for that purpose.

The results of the analyses confirm the presence of variations over time in sources of revenues and categories of expenditures, variations in patterns of revenues and expenditures among different types of jurisdictions, and relationships between categories of revenues and expenditures.

2. EQUALIZATION GRANTS

Seven education grants labelled "Fiscal Equalization Grants" were examined for 1972-1979 with particular attention to 1972, 1975 and 1979. Ledger sheets of the Department of Education were the primary data sources. In order to provide a common base for comparison among jurisdictions, the grant received by a jurisdiction was divided by the eligible enrolment. Four criteria of fiscal equalization were applied: participation, ability to pay, need, and sparsity. The following results emerged from the analysis:

- Over the span of years reviewed, there was a distinct increase in participation in special grants by jurisdiction.
- There was a distinct increase in the number of different grants available.
- Two grants, the Supplementary Requisition Equalization Grant (SREG) and the Small Jurisdiction Grant (SJG), exhibited general equalization impacts.
- Certain grants functioned in a specific rather than a general equalization manner; these grants were associated with a particular development or change, such as the Private School Opening Grant (PSOG). For both operation and analysis, grants of this type should be separated from those that are designed to produce generally equalizing effects.
- At least one grant, the Small Schools Assistance Grant (SSAG), seems intended to function more as a general grant to school jurisdictions than as a specific grant to individual schools. For whatever reason, this grant did not have much of a general impact.
- There seemed to be some evidence that the general equalization impact of some grants was weakened or diffused when total grant allocations were tested. This suggests the possibility that grants for a particular jurisdiction should be aggregated for allocation purposes and that the effects of the total should be monitored.

If the rationale underlying the selection of the four criteria and associated tests as indicators of equalizing impact is defensible, then the actual equalizing effect of the grants is minimal with a few notable exceptions. If the primary purpose of the grants is fiscal equalization, then this goal is not being achieved to any great extent, except for specific grants such as SREG.

3. CURRICULAR PROGRAMMING

The major purpose of this area of the study was to assess trends in curriculum and programming during the 1970s and to develop projections for the future. Data were obtained from files and records of the Department of Education supplemented by interviews and a telephone survey of principals of selected schools. The results of compiling data and making comparisons from the beginning to the end of the period under consideration were:

- In grades 10-12 there were substantial changes in course offerings and enrolment patterns. The significant academic additions were in second languages, religious studies and the social sciences, while major deletions occurred in home economics and industrial arts.
- There were no significant changes in course offerings in grades 7-9.
- Course offerings increased in second languages and environmental education in grades 1-6.
- The data base for grades 7-12 for the first seven years of the decade is difficult to access; however, the computerized files for the last three years greatly alleviate the access problem.
- The present data base for grades 1-6 programming is insufficiently detailed for analyses of the type proposed for this study.

An improved, more easily accessible data base would facilitate monitoring of changes and trends in course offerings at various levels of schooling.

4. STAFF AND TEACHING SITUATIONS

Data obtained from the Educational Staff Record Form data tapes and from published reports were used in the analysis of teacher characteristics for 1975, 1977 and 1979. The data on student enrolments were obtained from Department of Education reports and files. Major emphasis in the analysis was placed on variations across types of jurisdictions (large urban, other urban, counties/divisions, and "other" districts), positions (teaching, combined teaching and administrative/support, and administrative/support), and grade levels (special, ECS, 1-3, 4-6, 7-9, and 10-12). Within the limitations imposed by the availability of data for years before 1975, some attempt was made to determine changes and trends in teacher characteristics. Since data were available for earlier years, enrolment changes could be analyzed for 1972-1979.

- The analysis confirmed that the characteristics of the educational staff were generally stable over the four-year period, although there were some indications of possible trends. One major outcome of the analysis was confirmation that the provincial educational system should not be considered homogeneous with respect to various characteristics of the educational staff and teaching situations.
- In addition to the more obvious features such as numbers of educational staff and student enrolments, jurisdictions differed from each other on the following characteristics: qualifications of staff, experience of staff, non-teaching duties assigned to staff, employment status of staff, mobility of staff within the jurisdiction, time free of duties provided for staff, staff/student ratios, distribution of students across grade levels and enrolment changes in recent years.
- Other than the variations in duties normally associated with specific roles, there were variations across positions in characteristics such as: ratio of women to men, qualifications, source of initial certification, employment status, tenure with the present board, mobility within the jurisdiction, scope of assignment, total experience, time free of assigned duties and nature of non-teaching duties.
- There were variations across grade levels in characteristics such as class size, number of multiple classes, assignment of non-teaching duties, employment status, time free of teaching duties, qualifications and experience.

Many of these variations across types of jurisdictions, types of positions and different grade levels were small and occurred only between specific types and levels. Consequently, the generalizations proposed should be placed in the context of the analysis presented in "Characteristics of Educational Staff, Teaching Situations and Student Enrolments".

B. **Projections**

The projections outlined in the study are based on the assumption that there will be no major changes in economic, social and political conditions or in government policies in the near future. In the area of curricular programming, educated speculation produced alternative scenarios. In all areas, the limited understanding of complex interrelationships and limited data serve to underline the tentativeness of any projections.

1. REVENUES AND EXPENDITURES

Trends in revenues and expenditures are influenced to a high degree by government policies and general economic conditions. Since the combined effect of these factors places major limitations on usefulness of projections, only one is outlined below.

As was reported in the summary of findings, there has been a downward trend in the proportion of revenues obtained from SFPF and an upward trend in the proportion of revenues from the Supplementary Requisition. Unless there is a change in government policy or a change in economic and social conditions, the continuation of this trend will result in shifting the burden of financing schooling to the property tax. Urban school jurisdictions would be seriously affected by this trend because of the proportion of revenues which are already obtained through supplementary requisition. Such a trend may also have an adverse effect on instructional expenditures if the correlations between revenues and expenditures in the past are indicative of future patterns.

2. EQUALIZATION GRANTS

No evidence appeared in the available data to suggest that past educational financing trends are unlikely to continue; therefore, the following developments appear plausible:

- The number of special grants will increase, based upon additional characteristics, which are intended to differentiate among jurisdictions.
- The total monies allocated to these grants will be increased.
- The proportion of district revenues represented by special grants will increase while that represented by general allocations will decrease.
- Within the area of special grants, those that are event-specific (intended for short-run problem solving) will increasingly come into play, resulting in a gradual shift away from the more general equalization grants.
- When movement into program equalization (output equalization) occurs, the financing patterns will become highly diversified.

Clearly, these projections are useful only to the extent that no major changes occur in policies governing educational finance.

3. CURRICULAR PROGRAMMING

Several scenarios were developed to identify possible future states of curricular development. In all scenarios, both centralization and decentralization dynamics related to curriculum and programs are present within the province; education is caught in the interplay of these forces, and role frustration is a continuing problem.

The most likely speculations suggest that there will be an ascendancy of centralization forces in curricular and program development through to about the mid-1980s. Although participation in curricular development will remain "broadly based", Alberta Education will be the vehicle through which centralization will be effected. Evaluative measures will be the principal centralizing dynamic. Other centralizing forces include those related to an expanding population, strains upon local government resources and upon teachers, and the emergence of technological innovations which facilitate and favor central direction.

By the mid-point of the decade, the most likely scenario will be a weakening of the centralization forces and a strengthening of the decentralization dynamics, as a result of the impact of factors such as central financial concerns, ideological differences, diffusion of expertise and political expediencies which will temper centralization even in the early years of the decade.

For some participants in the educational system, the ebb and flow of centralization and decentralization will generate little more than frustrations, dissatisfactions and irritations which will stultify educational development. For others, the play of forces and the generally unsettled conditions will represent an opportunity to press forward with those ideas and interests they believe will benefit the educational services available in the province.

4. STAFF AND TEACHING SITUATIONS

Projections of teacher and teaching characteristics are based on the assumptions that there will be no major changes in policies which would affect either entry into the profession or employment policies of school boards. Similar assumptions must also be made with respect to economic conditions both generally as well as specifically within the public education sector.

Based on these assumptions and on recent trends, some projections of probable developments are:

- The variety of positions, designations, employment statuses and roles within the educational system will increase in response to variations in enrolment trends and program changes.
- Current trends with respect to characteristics of teaching situations suggest that there will be

smaller class sizes, lower student/staff ratios, fewer assigned non-teaching duties and more preparation time for teachers.

- Gradual changes in characteristics of the educational staff are projected in the direction of higher levels of qualification in terms of both years of teacher education and degrees held; an increase in the proportion of teachers whose initial certification is from Alberta; and a slightly more mobile teaching staff.
- Recent trends indicate a continuation of a decline in the proportion of total enrolment in large urban jurisdictions, increases in other urban jurisdictions and little overall change in non-urban districts, but with considerable variation within this category.
- The proportion of enrolments in lower grade levels will increase while the proportion in higher grade levels will decline slightly.
- With respect to characteristics of the educational staff, there will be relatively little change in average age, average experience, proportion of men and women, and proportion of women in school level administrative positions.

A general projection with respect to all of the above is that the variations previously noted across types of jurisdictions, positions and grade levels will persist unless policies are adopted to reduce the differences.

C. **Further Research**

As has already been indicated, the development of recommendations for further research was an important aspect of this preliminary review. The major focus of studies in the next stage of research should be on impact variables and interrelationships. Studies of this nature could be developed in relation to each specific area of educational finance.

1. REVENUES AND EXPENDITURES

In general, policies regarding school finance should be reviewed in light of changing circumstances. For example, the differential trends in transportation expenditures between urban and rural jurisdictions may warrant attention.

The groupings of the jurisdictions using the Q factor analysis and the presence of numerous significant correlations among revenue and expenditure data suggest that other studies of this nature should be conducted. Strategies should also be developed for interpreting the results of such analyses.

A suggestion for a general approach to research on financing education is outlined in the conclusion of this chapter.

2. OPERATION OF GRANTS

Research on the operation of grants could follow methodologies similar to those used in the present study, could be extended through alternative methodologies and might also focus on development of measures and indicators which could be applied in subsequent research. Specific studies which might be undertaken in these three areas are:

- Intensive case studies involving a province-wide random sample might be used to relate grant allocations to program expenditures.
- By identifying, or establishing, some test jurisdictions with complete program-based accounting systems, the impact of particular grants on program accounts could be traced.
- On a province-wide random sample basis, the variance in allocating specific examples of expenditures to budget categories could be determined through a procedures audit. The implications of the amount of variance found for the funding system could then be traced.
- Studies might be designed to determine the relationship between grant structure operation and specific purposes of grants, such as general aid, compensatory or stimulative.
- The relationship between funding and the presence of a program, or the degree to which a program is exceeded, could be approached by first specifying the basic or foundation educational program for each level or grade.
- Further research into the impact of grants would be facilitated by identifying specific characteristics at the levels of the province, jurisdiction, school and classroom which are considered significant in relation to funding. The basic unit of analysis could be the classroom with all characteristics capable of aggregation to each of the succeeding higher levels. There might be some characteristics at a specific level not shared by those below but still capable of aggregation to the levels above.
- Future research would also be facilitated by the construction of indicators and models. For exam-

ple, indicators of jurisdiction characteristics might be developed for wealth, population change, family structure and others. A model of a financial system could also be developed and tested in the Alberta setting.

Studies such as those proposed have potential for contributing to a more reliable picture of the equalizing effect of provincial grants.

3. CURRICULAR PROGRAMS

Future research in the area of curricular and program development should focus on the following problem: What impact do financial allocations have upon curriculum in the province? A program of research on this question could include the following studies:

- The research program might begin with a review of the literature on curricular and program development trends and practices.
- A set of detailed case studies at both the department and school district level could be developed on the relationship between fiscal variables and curricular variables. From these case studies, some tentative generalizations about the nature of the relationships might be obtained.
- There is need for further development and implementation of the data base, in terms of an information system, required for larger scale studies of the relationship between fiscal and program variables.
- Collection and analysis of data on a province-wide basis should be undertaken to develop a model which represents the system of fiscal-program relationships.
- A model such as that suggested here could be used to determine the probable effect of various fiscal decisions upon program characteristics.

Specific studies could be designed in some of these areas even in the absence of a more comprehensive research program.

4. STAFF AND TEACHING SITUATIONS

Future research on characteristics of teachers and teaching situations should proceed on a number of fronts such as those indicated:

- The exploratory analysis presented in this report should be extended both over more variables and also over time as data become available. In large part, such analyses should become a routine and regular treatment of data collected through the Educational Staff Record Form.
- The variations in teaching situations across grade levels — and to some extent variations in roles across types of positions — suggest a need for more intensive examinations, using different methodologies, into the nature of the work situations in which members of the educational staff find themselves.
- More research, on a continuing basis, is required into analyzing trends in student enrolments and in projecting enrolments on a jurisdiction by jurisdiction basis for the entire province.
- The significance of variations in characteristics of the educational staff, and in teaching situations, for the quality of education and for financing policies should be examined. This would involve both empirical analyses of relationships between these characteristics and finance variables as well as conceptual development of possible explanations of relationships among the variables.

A general recommendation that relates to each of the above is that future research should go beyond the methodologies that were used in the present analysis and that these should be applied in the collection of new data as well as to analysis of existing data on file.

D. **Directions**

Specific studies such as those which have been proposed attain full significance only when they are placed in the context of a major policy issue such as that of equalization. In addition, many of them could also be placed within a more general conceptual and methodological research approach. Both the policy and research frameworks are expanded below.

1. EQUALIZATION PROBLEM

The goal of complete fiscal equalization among jurisdictions in the province has not yet been reached; to the degree that the goal represents an ideal condition, it may never be reached. There is evidence that in Alberta, the effort has been real and continuing and that progress toward the ideal has been substantial.

The crux of the problem faced in financing education might be stated: "Given broadly disparate and inherently unequal circumstances among jurisdictions, and given the inability to directly effect substantial change in many of these differentiating factors, how can their varying impacts and interacting effects be treated to produce a common basic educational opportunity?"

In view of the nature and extent of the problem, it is not surprising that financial grants have not been uniformly successful in achieving the equalization goal. This suggests that the design and provision of these grants is a necessary but insufficient condition for success. Another essential element involves monitoring the impact of the grants in terms of intended effects. Operating procedures — which are, after all, the definition of the grant in a functional sense — can be modified and refined as indicated by the effects. The problem is to pattern grants so that they fit as precisely as possible the conditions of each jurisdiction.

Financial equalization efforts frequently follow an "if — then" logic such that an implicit assumption is operative. In effect, the assumption is made that increased fiscal resources can and will be successfully employed to counteract disadvantage. Acceptance of this assumption tends to discount the necessity for monitoring results, that is, for assessing changes in program. In a sense, effort is devoted to input equalization efforts rather than to output equalization.

Substantial similarities in educational process can be expected because of common constraints (statutes, rules, regulations), and common means (curriculum, physical facilities, instructional materials, and personnel preparation). Perhaps what is required is equalization of effort exerted to accomplish program ends. Until means for adequately defining and measuring the educational program and its outputs are developed, the attempt to provide financial equalization may represent the maximum attainable.

2. PRODUCTION FUNCTION RESEARCH

An examination of a system of school finance should consist of three major aspects: (a) a general analysis of the relative level of local and provincial input; (b) a study of the equity of the distribution; (c) a review of conditional grants and the benefits of the programs they support. In large measure, the present study addressed the first two aspects; an approach to the third is outlined in this section.

A relatively recent and innovative approach to the study of school finance involves use of the educational production function. This approach is based on the assumption that provincial and local governments want to obtain the highest possible output from the resources used in education. The production function approach largely ignores the more traditional principles of school finance and places heavy emphasis upon efficiency.

An education production function is an attempt to relate the outcomes of education to the inputs. According to C. S. Benson in *The Economics of Public Education*, the output consists of achievements of students while inputs can be placed in three major categories: (a) the cumulative effects of the family and neighborhood of each student; (b) the cumulative effect of the in-school peers of each student; (c) the cumulative effects of the school attended by the student. In brief the production function approach is based on the idea that the achievement of a student is a result of the interaction of family and neighborhood factors, together with group influences and the efforts of the school.

There is general acceptance that the family and neighborhood effects, as well as peer effects, are largely beyond the control of the school; they are usually accepted as given. (See S. Bowles, *Towards an Education Production Function*.) However, this is not to say that these factors are unimportant in the achievement of students. According to some studies (for example, see E. Cohn, *et al., Input-Output Analysis in Public Education)*, the non-school variables may account for as much as 80% of the variance in student achievement. Consequently, these other variables should be considered in any study of the impact of school input.

The lack of direct measures for many of the variables in the education production function necessitates the use of indirect measures. Moreover, the lack of knowledge of the processes through which certain variables affect learning creates a situation involving tentative use of variables. Although differences in home and neighborhood are accepted as contributing to differences in achievement, there is limited understanding of which aspects make a difference and of how these differences develop.

The difficulty of measuring educational output has created problems in educational production function studies. Many of the studies have used comprehensive achievement measures (see Bowles, pp. 20-80). Another approach might be to use measures of education processes on the assumption that these are related to outcomes. Again, an exploratory approach to output measures might be advisable initially.

At this stage, an exploratory approach toward the examination of the education production function in Alberta should be considered. This exploratory approach could make use of different measures of family and neighborhood characteristics, peer group characteristics, and school characteristics. A variety of measures and proxies of output as well as a variety of analyses could also be used. The eventual outcome of such an approach might or might not support the need for different kinds of funding for different kinds of school jurisdictions. These differences in funding, if justified, might be based on differences in neighborhoods, types of students or even differences in the objectives of the local jurisdictions.

3. RESEARCH AND POLICY

Although some research problems may seem more urgent than others and some methodologies more appropriate than others at a particular time, a comprehensive program of research into financing education requires a balance among alternative perspectives and methods. The approaches used and proposed in this report should be extended in future studies, and additional ones should be adopted. The studies which are the subject of this report could be described correctly as macroanalyses involving primarily quantitative data; there is need for more macroanalyses particularly of the interrelationships among student, teacher, program, and financial data. But there is also a need to move from macro to microanalyses in order to obtain a better understanding of the impact of funding arrangements on programs at the local level. Qualitative analysis using case study methodology in a small number of jurisdictions and schools would yield important data not presently available in existing files and reports. In addition, there should be follow-up studies of some of the findings that have been reported using interview techniques with school, jurisdiction, and Alberta Education personnel. Data obtained in this way would contribute to explanations of observed trends and of provincial financial policy influence on local decisions.

A comprehensive and balanced program of research would ensure that policy making on educational finance is adequately informed. An informed policy process increases the probability that the outputs will be sound, effective and equitable — a goal shared by researchers and policy makers alike.

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APPENDIX

TABLE III.25

Age Distribution of Educational Staff

Age	1975	1977	1979
25 and under	16.53%	13.95%	12.45%
26-30	23.60	23.80	21.47
31-35	17.63	18.78	20.14
36-40	11.77	13.52	15.93
41-45	8.64	9.08	10.17
46-50	7.92	7.98	7.73
51-55	6.76	6.57	6.49
56-60	4.71	4.25	3.96
Over 60	2.45	2.07	1.25
Average	34.33	34.54	34.66

Note: Based on reports prepared by Student Evaluation and Data Processing Services Branch, Alberta Education.

TABLE III.26

Experience of Educational Staff with Present Board by Type of Jurisdiction, 1979

Years of Experience	Large Urban	Other Urban	Counties & Divisions	Other	Total
Less than 2	12.22%	23.11%	25.69%	29.35%	19.43%
2 to 5	25.55	33.45	30.87	30.89	28.81
6 to 10	26.49	20.70	18.44	19.73	22.52
11 to 15	21.38	14.23	12.75	12.21	16.85
More than 15	14.36	8.52	12.25	7.83	12.38
Average number of years	8.71	6.37	6.91	5.80	7.58

TABLE III.27

Proportion of Educational Staff Time Assigned to Classroom Teaching by Type of Jurisdiction, 1979

Percent of Time	Large Urban	Other Urban	Counties & Divisions	Other	Total
100% - 91%	55.45%	45.15%	44.76%	43.22%	49.59%
90% - 81%	16.51	28.95	35.94	35.76	26.08
80% - 71%	6.84	7.11	5.40	6.47	6.37
70% or less	10.87	11.95	9.94	10.24	10.67
None/Not Specified	10.33	6.85	3.96	4.32	7.30

TABLE III.28

Proportion of Educational Staff Time Assigned to Classroom Teaching by Type of Position, 1979

Percent of Time	Teacher	Admin./Support & Teacher	Admin./ Support	Total
100% - 91%	62.31%	16.19%	5.90%	49.59%
90% - 81%	31.17	15.86	3.10	26.08
80% - 71%	5.03	14.23	3.41	6.37
70% - 51%	0.77	16.52	2.93	3.56
50% - 1%	0.34	33.42	15.96	7.15
None/Not Specified	0.38	3.77	68.71	7.29

TABLE III.29

Weighted Average Class Size[1] by Grade

Grade	1976-77	1977-78	1978-79	1979-80	1980-81
1	23.0	22.6	22.4	22.2	22.0
2	23.7	24.0	23.7	23.3	23.1
3	24.6	24.8	24.5	24.2	24.0
4	25.3	25.1	24.9	24.7	24.2
5	25.4	25.6	25.1	24.9	24.5
6	25.6	25.6	25.2	24.9	24.5
7	25.2	25.0	24.5	24.0	23.5
8	24.9	24.9	24.2	23.6	23.3
9	24.6	24.5	24.1	23.5	23.0
10	24.6	24.6	24.3	23.8	23.2
11	24.7	24.8	24.4	23.9	23.4
12	24.6	24.7	24.4	23.9	23.4

[1] Weighted average class size is an adjusted figure taking into account the proportion of time that teachers teaching multiple classes spend with classes of varying sizes.

NOTE: This table is based on analyses by Dr. J.Collins Meek.

TABLE III.30

Pupil/Teacher Ratio and Weighted Average Class Size[1] in Selected Urban Jurisdictions

District	Year	Pupil/Teacher Ratio	Weighted Average Class Size
Edmonton S.D. #7	1977	17.6	25.0
	1979	16.2	23.9
County of Strathcona #20	1977	18.5	25.6
	1979	17.1	23.8
County of Leduc #25	1977	19.1	24.9
	1979	18.5	24.0
County of Parkland #31	1977	18.9	25.5
	1979	18.3	24.2
Edmonton R.C.S.S.D. #7	1977	18.7	24.9
	1979	18.0	24.2
St. Albert P.S.S.D. #6	1977	19.3	27.4
	1979	18.0	26.0
St. Albert S.D. #3	1977	20.4	26.6
	1979	18.8	26.2
Calgary S.D. #19	1977	19.5	27.4
	1979	18.4	27.1
Calgary R.C.S.S.D. #1	1977	20.2	29.5
	1979	20.0	30.0
Rocky View Division #41	1977	19.5	26.0
	1979	19.4	25.1
Province	1977	18.5	24.7
	1979	18.1	23.9

[1] Weighted average class size is an adjusted figure taking into account the proportion of time that teachers teaching multiple classes spend with classes of varying sizes.

NOTE: This table is based on analyses by Dr. J.Collins Meek.

TABLE III.31

Pupil/Teacher Ratio and Weighted Average Class Size in Zone 5 School Jurisdictions

Jurisdictions	Year	Pupil/Teacher Ratio	Weighted Average Class Size
Berry Creek Division #1	1977	12.3	14.8
	1979	10.5	12.9
Acadia Division #8	1977	15.0	17.7
	1979	14.0	16.9
Rangeland Division #9	1977	17.9	20.7
	1979	16.9	20.7
Starland Division #30	1977	15.6	16.4
	1979	14.3	16.8
Foothills Division #38	1977	19.9	25.9
	1979	18.5	24.6
Rocky View Division #41	1977	19.5	26.0
	1979	19.4	25.1
Three Hills Division #60	1977	17.7	20.3
	1979	17.1	21.0
Drumheller Val. Div. #62	1977	18.8	24.7
	1979	19.1	23.2
County of Wheatland #16	1977	18.8	21.0
	1979	17.4	20.5
County of Mountain View #17	1977	18.3	24.5
	1979	17.9	23.1
Calgary S.D. #19	1977	19.5	27.4
	1979	18.4	27.1
Calgary R.C.S.S.D. #1	1977	20.2	29.5
	1979	20.0	30.0
Drumheller R.C.S.S.D. #25	1977	18.8	26.2
	1979	18.9	27.0
Assumption R.C.S.S.D. #50	1977	14.0	16.0
	1979	15.4	15.4
Zone 5	1977	19.4	26.8
	1979	18.6	26.4
Province	1977	18.5	24.7
	1979	18.1	23.9

NOTE: This table is based on analyses by Dr. J.Collins Meek.

TABLE III.32

Weighted Average Class Size in Provincial School Zones for the 1980-81 School Year

Grade	Zone #1	Zone #2	Zone #3	Zone #4	Zone #5	Zone #6	Province
1	20.7	21.0	21.2	21.0	24.7	21.1	22.0
2	21.8	23.3	22.3	22.0	25.7	21.6	23.1
3	22.7	23.5	23.3	22.8	26.5	22.9	24.0
4	23.5	24.2	23.3	23.0	26.8	22.7	24.2
5	23.4	24.3	24.0	23.1	27.0	23.1	24.5
6	23.2	24.0	24.0	23.1	26.9	22.8	24.5
7	21.5	22.6	23.8	22.3	24.8	22.6	23.5
8	21.4	22.7	23.5	21.9	24.4	22.6	23.3
9	21.5	22.5	23.2	21.6	24.3	22.3	23.0
10	21.4	22.4	23.6	21.5	24.1	22.5	23.2
11	21.5	22.3	24.1	21.3	24.3	22.3	23.4
12	21.6	22.1	24.1	21.5	24.4	21.9	23.4
						Provincial average	23.5

Zone 1 — Northwest Alberta
Zone 2 — Northeast Alberta
Zone 3 — Edmonton region, including metropolitan Edmonton
Zone 4 — Central Alberta
Zone 5 — Calgary region, including metropolitan Calgary
Zone 6 — Lethbridge, Medicine Hat areas

NOTE: This table is based on analyses by Dr. J. Collins Meek.

TABLE III.33

1972 Equalization Grants Study

Jurisdiction Name	Eligible Enrolment	Equalized Assessment /Elig. Pup. ($000s)	Transport Exp./Elig. Pupil ($s)	1979 Route Distance /Elig. Pup. (km)	Grants/Elig. Pupil ($s)		
					Location Allow.	Incremental	Total
Divisions							
1 Berry Creek	213	25.8	608.1	13.8	16.5	93.9	110.4
2 Cardston	2247	7.9	265.1	2.4	2.2	—	2.2
4 Medicine Hat	796	20.4	472.1	10.1	3.5	—	3.5
8 Acadia	1006	13.5	289.4	7.1	0.4	—	0.4
9 Rangeland	240	24.6	592.8	4.1	1.9	—	1.9
10 Peace River	3159	6.9	134.3	3.2	0.3	—	0.3
12 Yellowhead	5079	5.0	85.7	1.5	0.4	—	0.4
16 Neutral Hills	735	11.3	188.1	4.7	0.6	—	0.6
24 Sturgeon	1861	8.7	208.5	2.0	—	20.4	20.4
28 Willow Creek	2723	8.7	125.9	2.6	0.6	—	0.6
29 Pincher Creek	1345	11.2	115.7	2.8	1.3	—	1.3
32 Wainwright	2006	7.2	104.3	2.5	0.4	—	0.4
33 Provost	1087	10.6	191.9	4.1	1.3	—	1.3
37 Westlock	2704	6.2	153.8	3.4	0.2	—	0.2
38 Foothills	3353	7.7	79.1	2.0	0.3	—	0.3
41 Rocky View	4455	10.1	144.0	1.9	0.3	—	0.3
46 Bonnyville	2923	3.1	126.6	2.4	1.0	—	1.0
47 Spirit River	1936	6.5	174.3	4.4	3.7	—	3.7
48 High Prairie	3685	3.9	104.9	2.7	2.7	13.6	16.3
50 Fairview	1583	6.5	152.7	3.6	3.1	—	3.1
51 Lac La Biche	2156	2.5	139.6	2.8	2.0	78.5	80.5
52 Fort Vermilion	1710	2.5	144.6	1.8	22.4	238.3	260.7
54 East Smoky	1815	8.7	134.5	3.2	7.8	—	7.8
60 Three Hills	1971	12.1	146.2	2.9	0.4	—	0.4
61 Northland	1579	1.1	261.7	0.3	32.8	537.0	569.8
Counties							
1 Grande Prairie	2770	5.7	189.9	2.9	1.5	—	1.5
2 Vulcan	1576	14.1	178.8	6.0	0.3	—	0.3
3 Ponoka	3385	6.3	82.0	2.1	0.1	—	0.1
4 Newell	1603	8.1	158.1	3.5	0.8	—	0.8
5 Warner	1967	8.3	112.6	2.8	2.3	—	2.3

TABLE III.33 (continued)

1972 Equalization Grants Study

Jurisdiction Name	Eligible Enrolment	Equalized Assessment /Elig. Pup. ($000s)	Transport Exp./Elig. Pupil ($s)	1979 Route Distance /Elig. Pup. (km)	Grants/Elig. Pupil ($s) Location Allow.	Grants/Elig. Pupil ($s) Incremential	Grants/Elig. Pupil ($s) Total
6 Stettler	1047	15.8	251.5	6.5	0.5	—	0.5
8 Forty Mile	1318	12.6	217.6	5.2	2.7	—	2.7
9 Beaver	2199	7.5	114.2	2.6	0.2	—	0.2
10 Wetaskiwin	2243	6.9	184.1	2.7	1.1	—	1.1
12 Athabasca	2450	4.6	150.8	—	0.4	—	0.4
13 Smoky Lake	1205	6.5	126.3	2.9	0.4	—	0.4
16 Wheatland	1708	13.2	196.7	3.0	1.2	—	1.2
18 Paintearth	1205	10.1	128.1	3.5	0.4	—	0.4
19 St. Paul	1431	5.9	215.0	4.4	1.4	—	1.4
22 Camrose	2435	8.3	123.6	3.0	0.2	—	0.2
23 Red Deer	4377	7.5	126.3	1.8	0.1	—	0.1
24 Vermilion River	2364	10.0	174.1	3.7	0.6	—	0.6
25 Leduc	5123	6.2	101.3	0.6	0.2	—	0.2
26 Lethbridge	3132	6.8	100.0	1.6	0.6	—	0.6
27 Minburn	2208	8.8	121.6	2.3	0.4	—	0.4
29 Flagstaff	2551	8.2	120.0	2.5	0.4	—	0.4
Public School Districts							
2833 Fort McMurray	1529	8.4	4.5	0.1	7.5	—	7.5
3211 Nordegg	56	3.4	311.8	—	36.8	273.4	310.2
4910 Grovedale	81	2.1	189.2	6.4	16.0	—	16.0
5109 Swan Hills	368	3.6	52.9	0.9	7.8	—	7.8
Roman Catholic Separate School Districts							
26 Fort Vermilion	115	1.1	8.2	—	15.1	—	15.1
32 Fort McMurray	836	9.1	19.9	0.2	7.2	—	7.2

NOTE: In Tables III.34 and III.35, the predecessor to the Small Jurisdiction Grant, the Superintendency Grant, has been listed under the Small Jurisdiction heading for consistency.

TABLE III.34

1975 Equalization Grants Study

Jurisdiction Name	Eligible Enrol- ment	Equal Assess. /Elig. Pupil ($000s)	Trans- port Exp./ Elig. Pup. ($)	1979 Route dis- tance /Elig. Pup. (km)	Grants/Eligible Pupil ($s)						
					Supple. Requis. Equal.	Small School	Small Juris.	Dec- lining Enrol.	Loca- tion Allow.	Incre- mental	Total
Divisions											
1 Berry Creek	172	33.2	690.1	13.8	—	20.9	10.4	45.9	21.5	—	98.7
2 Cardston	2174	8.5	141.2	2.4	44.0	13.5	—	—	2.7	—	60.2
4 Medicine Hat	802	29.0	614.2	10.1	—	29.8	—	—	4.0	—	33.8
6 Taber	2704	8.6	125.9	2.1	70.4	3.3	—	4.4	—	—	78.1
8 Acadia	861	20.1	398.3	7.1	—	14.1	—	28.6	0.6	—	43.3
9 Rangeland	958	12.6	164.4	4.1	5.6	5.0	—	28.3	0.5	62.3	101.7
10 Peace River	2811	8.6	188.6	3.2	59.1	2.8	—	12.9	0.2	—	75.0
12 Yellowhead	5064	7.2	113.9	1.5	50.4	2.4	—	—	0.4	—	53.2
15 Rocky Mountain	2906	10.8	136.6	2.1	7.2	0.8	—	—	0.4	—	8.4
16 Neutral Hills	612	16.5	269.0	4.7	—	3.3	—	16.6	0.8	—	20.7
24 Sturgeon	2250	9.4	269.8	2.0	79.3	0.7	—	—	—	—	80.0
28 Willow Creek	2718	10.1	138.0	2.6	38.9	4.1	—	—	1.4	—	44.4
29 Pincher Creek	1381	13.7	135.4	2.8	—	6.1	—	—	1.5	26.4	34.0
30 Starland	636	17.4	238.2	5.1	—	15.5	—	5.6	—	—	21.1
32 Wainwright	1727	9.2	175.6	2.5	46.8	2.7	—	15.8	0.6	—	65.9
33 Provost	968	12.5	282.7	4.1	—	13.6	—	12.3	2.0	—	27.9
37 Westlock	2537	7.3	239.1	3.4	75.2	3.8	—	—	0.2	—	79.2
38 Foothills	3747	10.5	123.9	2.0	37.0	2.1	—	—	0.3	0.7	40.1
41 Rocky View	5286	10.5	172.1	1.9	21.1	1.5	—	—	0.3	—	22.9
46 Bonnyville	2489	5.0	202.6	2.4	119.0	—	—	—	1.3	—	120.3
47 Spirit River	1870	7.1	212.5	4.4	73.7	9.1	—	13.2	5.7	—	101.7
48 High Prairie	3439	6.2	154.9	2.7	66.5	2.7	—	3.9	2.7	—	75.8
50 Fairview	1416	8.4	229.0	3.6	78.7	2.5	—	13.4	3.1	—	97.7
51 Lac La Biche	2167	2.7	186.1	2.8	111.2	2.3	—	—	2.4	7.3	123.2
52 Fort Vermilion	1895	5.3	150.3	1.8	77.0	0.7	—	—	26.0	201.6	305.3
54 East Smoky	1891	17.5	142.6	3.2	—	2.3	—	—	9.8	—	12.1
60 Three Hills	1922	13.2	186.1	2.9	2.9	7.6	—	—	0.5	—	11.0
61 Northlands	1582	1.5	368.5	0.3	82.8	34.6	—	—	53.0	1164.3	1334.7
62 Drumheller	1524	9.6	55.7	0.4	26.8	—	—	5.9	—	—	32.7
63 Crowsnest Pass	1608	5.5	37.2	0.1	85.4	—	—	—	—	—	85.4

TABLE III.34 (continued)
1975 Equalization Grants Study

					Grants/Eligible Pupil ($ s)						
Jurisdiction Name	Eligible Enrol-ment	Equal Assess. /Elig. Pupil ($000s)	Trans-port Exp./ Elig. Pup. ($)	1979 Route dis-tance /Elig. Pup. (km)	Supple. Requis. Equal.	Small School	Small Juris.	Dec-lining Enrol.	Loca-tion Allow.	Incre-mental	Total
Counties											
1 Grande Prairie	2843	11.9	272.5	2.9	93.0	4.7	—	—	1.7	—	99.4
2 Vulcan	1376	16.2	266.5	6.0	—	11.6	—	16.0	0.4	—	28.0
3 Ponoka	3100	7.5	111.9	2.1	67.4	2.8	—	5.0	0.2	—	75.4
4 Newell	1545	10.2	211.7	3.5	16.8	11.1	—	3.7	1.0	—	32.6
5 Warner	1774	9.9	161.0	2.8	46.3	15.1	—	5.5	2.9	—	69.8
6 Stettler	988	17.2	319.0	6.5	—	16.1	—	3.7	0.7	—	20.5
7 Thorhild	1522	13.7	141.4	3.0	—	—	—	3.6	—	—	3.6
8 Forty Mile	1192	13.6	312.3	5.2	—	11.6	—	14.3	3.8	—	29.7
9 Beaver	2002	8.9	179.1	2.6	52.9	3.7	—	5.2	0.2	—	62.0
10 Wetaskiwin	2114	8.7	253.3	2.7	61.6	3.7	—	—	1.3	—	66.6
11 Barrhead	2392	5.6	140.8	2.4	79.0	7.2	—	—	—	—	86.2
12 Athabasca	2295	5.5	212.0	—	87.7	2.1	—	—	0.7	—	90.5
13 Smoky Lake	1090	7.8	183.7	2.9	67.9	8.6	—	5.1	0.5	—	82.1
14 Lacombe	3521	9.4	131.4	1.7	46.8	0.8	—	—	0.2	—	47.8
16 Wheatland	1698	14.1	288.4	3.0	—	10.8	—	—	1.8	—	12.6
17 Mountain View	4062	10.7	114.0	2.2	23.2	2.0	—	—	—	—	25.2
18 Paintearth	1098	12.6	205.6	3.5	—	7.2	—	—	0.5	—	7.7
19 St. Paul	1365	6.3	285.9	4.4	135.6	9.8	—	—	1.4	—	146.8
20 Strathcona	11320	10.6	85.8	0.6	39.2	—	—	—	—	—	39.2
21 Two Hills	1398	10.2	172.5	2.9	44.1	1.1	—	12.4	—	—	57.6
22 Camrose	2247	9.6	173.7	3.0	49.7	6.3	—	3.6	0.2	—	59.8
23 Red Deer	4171	9.1	179.7	1.8	56.9	1.2	—	—	0.1	—	58.2
24 Vermilion River	2230	11.0	265.9	3.7	37.4	5.8	—	4.1	0.6	—	47.9
25 Leduc	5621	8.9	144.1	0.6	38.2	1.2	—	—	0.1	—	39.5
26 Lethbridge	3113	8.5	141.0	1.6	72.5	3.8	—	—	0.8	—	77.1
27 Minburn	2030	11.3	187.4	2.3	45.4	5.7	—	12.6	0.5	—	64.2
28 Lac Ste. Anne	3480	7.9	184.3	2.3	38.3	1.8	—	—	—	—	40.1
29 Flagstaff	2310	9.6	174.3	2.5	33.7	1.7	—	12.6	0.4	—	48.4
30 Lamont	1767	8.9	196.4	2.3	57.2	—	—	—	—	—	57.2
31 Parkland	7322	9.3	126.8	1.2	22.0	—	—	—	—	—	22.0

TABLE III.34 (continued)
1975 Equalization Grants Study

					Grants/Eligible Pupil ($ s)						
Jurisdiction Name	Eligible Enrolment	Equal Assess. /Elig. Pupil ($000s)	Transport Exp./ Elig. Pup. ($)	1979 Route distance /Elig. Pup. (km)	Supple. Requis. Equal.	Small School	Small Juris.	Declining Enrol.	Location Allow.	Incremental	Total
Public School Districts											
3 St. Albert	2435	7.2	42.0	—	75.2	—	—	—	—	—	75.2
7 Edmonton	67535	19.0	23.9	—	—	—	—	3.9	—	—	3.9
19 Calgary	82351	18.2	20.0	—	9.4	—	—	—	—	—	9.4
51 Lethbridge	7550	12.1	23.1	—	38.1	—	—	—	—	—	38.1
76 Medicine Hat	5348	10.2	11.8	—	29.5	—	—	—	—	—	29.5
102 Banff	582	34.4	7.5	—	—	—	7.1	15.2	—	—	22.3
104 Red Deer	5648	11.5	10.1	—	47.8	0.1	—	—	—	—	47.9
168 Canmore	494	11.5	24.4	—	37.2	—	8.5	—	—	—	45.7
264 Wetaskiwin	1455	9.7	18.0	—	30.4	—	—	4.6	—	—	35.0
647 Stirling	155	6.7	85.6	0.6	71.8	—	5.2	—	—	—	77.0
1315 Camrose	1710	11.0	14.5	—	11.5	0.5	—	—	—	—	12.0
1475 Stettler	1304	7.2	6.9	—	36.2	—	—	3.8	—	—	40.0
1699 Exshaw	113	19.0	137.7	—	—	—	10.4	82.8	—	—	93.2
1738 Legal	421	6.4	114.9	1.2	71.4	—	—	—	—	—	71.4
2092 Brooks	1681	7.0	13.3	0.1	52.5	—	—	—	—	—	52.5
2228 St. Paul	909	6.9	10.9	0.1	77.8	—	—	5.9	—	—	83.7
2283 Redcliff	582	9.2	36.6	0.2	56.9	—	—	—	—	—	56.9
2357 Grande Prairie	3356	10.2	18.2	—	51.6	0.1	—	—	—	—	51.7
2665 Bonnyville	544	9.6	60.2	0.6	69.4	—	7.5	5.0	—	—	81.9
4152 Seebe	12	35.7	746.2	—	—	100.0	10.4	8.8	—	—	119.2
4233 Waterton Park	15	85.8	—	—	—	100.0	—	—	—	—	100.0
4910 Grovedale	89	2.1	181.4	6.4	151.8	—	—	—	17.5	—	169.3
5109 Swan Hills	398	11.0	52.4	0.9	5.6	—	10.0	—	11.8	—	27.4
5258 Grande Cache	1124	10.0	18.0	0.1	—	—	—	4.9	—	—	4.9

TABLE III.34 (continued)
1975 Equalization Grants Study

Jurisdiction Name	Eligible Enrolment	Equal Assess. /Elig. Pupil ($000s)	Transport Exp./ Elig. Pup. ($)	1979 Route distance /Elig. Pup. (km)	Grants/Eligible Pupil ($ s)						
					Supple. Requis. Equal.	Small School	Small Juris.	Declining Enrol.	Location Allow.	Incremental	Total
Roman Catholic Separate School Districts											
1 Calgary	21593	10.7	39.8	—	66.6	—	—	—	—	—	66.6
7 Edmonton	29227	15.6	20.7	—	16.9	—	—	—	—	—	16.9
9 Lethbridge	2181	11.0	21.7	—	44.2	—	—	—	—	—	44.2
15 Wetaskiwin	177	5.4	13.6	—	108.1	—	10.4	52.5	—	—	171.0
16 Vegreville	227	15.0	34.4	—	16.6	—	10.4	14.9	—	—	41.9
17 Red Deer	1313	6.7	26.5	—	82.3	—	—	—	—	—	82.3
18 Pincher Creek	315	3.5	2.7	—	48.7	—	10.4	—	—	—	59.1
21 Medicine Hat	1843	6.4	21.6	—	87.4	—	—	—	—	—	87.4
23 Theresetta	188	2.2	1.8	—	18.0	—	10.4	5.5	—	—	33.9
25 Drumheller	297	9.3	40.2	—	71.2	—	—	—	—	—	71.2
26 Fort Vermilion	108	1.6	43.6	—	—	—	10.4	—	1.7	—	12.1
27 St. Ritas	77	7.8	35.5	—	—	75.0	—	47.5	—	—	122.5
28 Grande Prairie	1051	7.1	52.1	—	85.5	—	—	—	—	—	85.5
30 McLennan	210	4.4	51.5	1.0	98.9	—	10.4	—	—	—	109.3
31 Wainwright	218	4.4	3.9	—	68.6	—	9.6	17.1	—	—	95.3
32 Fort McMurray	1215	14.0	45.3	0.2	57.1	—	—	—	—	—	57.1
35 St. Thomas More	420	3.6	—	—	47.0	—	9.9	—	—	—	56.9
36 Spirit River	93	3.5	0.4	—	85.5	31.7	10.4	30.9	—	—	158.5
37 Rosary	200	3.4	—	—	36.1	—	5.2	—	—	—	41.3
43 Peace River	599	5.2	31.1	0.3	74.7	—	7.1	—	—	—	81.8
49 Killam	90	5.2	25.7	—	84.7	36.1	10.4	17.3	—	—	148.5
50 Assumption	91	5.2	—	—	140.4	—	5.2	28.3	—	—	173.9
51 Sexsmith	103	3.1	—	—	48.0	—	10.4	14.4	—	—	72.8
54 Taber	544	5.2	16.8	—	44.1	—	7.6	—	—	—	51.7
56 High Prairie	418	3.2	7.2	—	17.3	—	10.1	—	—	—	27.4
60 Camrose	478	6.6	10.9	—	55.2	—	4.3	—	—	—	59.5
64 Cold Lake	198	3.2	5.9	—	66.4	—	10.4	—	—	—	76.8
65 Provost	272	3.8	5.0	—	37.5	—	10.4	4.7	—	—	52.6
67 Grand Centre	188	5.2	19.4	0.2	100.0	—	10.4	—	—	—	110.4
68 Beaverlodge	90	2.0	—	—	59.1	35.7	10.4	—	—	—	105.2

TABLE III.34 (continued)
1975 Equalization Grants Study

Jurisdiction Name	Eligible Enrolment	Equal Assess. /Elig. Pupil ($000s)	Trans-port Exp./ Elig. Pup. ($)	1979 Route distance /Elig. Pup. (km)	Grants/Eligible Pupil ($ s)						
					Supple. Requis. Equal.	Small School	Small Juris.	Declining Enrol.	Location Allow.	Incremental	Total
oman Catholic Separate School Districts (continued)											
73 Coaldale	250	3.0	39.2	—	74.8	—	10.4	—	—	—	85.2
79 Picture Butte	179	6.0	71.6	—	41.8	—	10.4	5.8	—	—	58.0
82 Bow Island	206	4.0	9.7	—	91.0	—	10.4	—	—	—	101.4
84 Valleyview	133	6.3	8.5	—	36.3	—	10.4	66.1	—	—	112.8
88 Grimshaw	176	4.1	55.3	0.5	120.5	—	10.4	4.6	—	—	135.5
94 Whitecourt	225	7.3	44.8	0.1	51.7	—	10.4	—	—	—	62.1
95 Ponoka	112	6.6	—	—	91.5	—	5.2	50.1	—	—	146.8
96 Nampa	61	0.1	—	—	—	75.0	10.4	62.2	—	—	147.6
97 Vermilion	339	3.2	6.0	—	67.3	—	10.4	12.8	—	—	90.5
04 Fort Saskatchewan	387	7.7	59.5	0.2	52.0	—	10.4	—	—	—	62.4
05 Sherwood Park	2066	3.6	50.5	0.5	104.5	—	—	—	—	—	104.5
10 Westlock	406	4.8	33.1	0.1	46.5	—	10.3	—	—	—	56.8
11 Drayton Valley	342	2.6	33.2	—	61.9	—	10.4	54.1	—	—	126.4
Consolidated School Districts											
8 Barons	58	22.2	375.6	4.4	—	75.0	—	56.0	—	—	131.0
38 Lousana	39	12.6	354.8	2.7	—	100.0	—	13.0	—	—	113.0
69 Falher	506	4.3	92.8	1.3	50.4	—	8.3	14.8	—	—	73.5
oman Catholic Public School Districts											
35 Thibault	676	5.7	28.3	0.2	83.1	—	—	—	—	—	83.1
Protestant Separate School Districts											
5 Glen Avon	361	9.8	5.7	—	68.5	—	10.4	15.6	—	—	94.5
6 St. Albert	4072	7.4	30.3	—	79.5	—	—	—	—	—	79.5

TABLE III.35

1979 Equalization Grants Study

Jurisdiction Name	Eligible Enrolment	Equal Assess. /Res. Pupil ($000s)	Transport. Exp./ Elig. Pup. ($)	Route Distance /Elig. Pup. (km)	Grants/Eligible Pupil ($ s)							
					Supple. Requis. Equal.	Small School	Small Juris.	Declining Enrol.	Location Allow.	Priv. School Open.	Incremental	Total
Divisions												
1 Berry Creek	136	89.4	849.9	13.8	—	172.4	43.9	119.8	77.6	—	—	413.7
2 Cardston	2108	11.1	220.0	2.4	111.3	42.9	—	9.9	3.3	—	—	167.4
4 Medicine Hat	807	43.6	890.2	10.1	—	67.7	16.1	—	20.6	—	—	104.4
6 Taber	2450	11.5	209.0	2.1	121.2	20.7	—	15.6	0.5	—	—	158.0
8 Acadia	704	42.7	643.8	7.1	—	82.3	20.4	60.9	7.0	—	—	170.6
9 Rangeland	931	23.2	251.3	4.1	—	33.3	11.1	24.0	1.3	—	—	69.7
10 Peace River	2654	12.1	311.7	3.2	120.0	23.1	—	18.1	—	—	—	161.2
12 Yellowhead	5261	14.5	173.2	1.5	71.4	8.1	—	—	0.4	2.0	—	81.9
15 Rocky Mountain	3092	24.6	217.1	2.1	0.7	4.1	—	—	0.4	—	—	5.2
16 Neutral Hills	566	27.5	352.0	4.7	—	70.6	31.0	54.7	13.3	—	—	169.6
24 Sturgeon	4269	17.7	258.5	2.0	34.6	3.6	—	—	0.3	—	1.4	39.9
28 Willow Creek	2658	15.6	186.3	2.6	60.7	19.6	—	2.7	1.1	3.6	—	87.7
29 Pincher Creek	1220	20.5	227.6	2.8	—	22.2	4.1	26.9	1.3	17.3	—	71.8
30 Starland	572	20.7	328.7	5.1	—	86.2	27.9	—	—	—	—	114.1
32 Wainwright	1626	16.7	236.9	2.5	52.8	27.5	—	5.6	0.8	—	—	86.7
33 Provost	818	23.3	465.9	4.1	—	73.8	14.2	23.0	9.0	—	—	120.0
37 Westlock	2349	11.5	356.7	3.4	126.4	16.5	—	12.2	0.4	—	—	155.5
38 Foothills	4081	19.3	190.6	2.0	32.2	13.5	—	—	0.4	—	1.2	47.3
41 Rocky View	6026	23.6	239.7	1.9	—	3.9	—	—	0.3	—	—	4.2
46 Bonnyville	2591	8.6	277.3	2.4	186.2	10.8	—	10.4	1.7	—	—	209.1
47 Spirit River	1566	10.7	361.4	4.4	131.2	50.3	—	27.2	12.0	18.8	—	239.5
48 High Prairie	3272	11.8	246.9	2.7	102.7	24.5	—	0.3	2.7	—	11.2	141.4
50 Fairview	1527	10.8	362.3	3.6	134.4	22.3	—	10.2	9.2	—	—	176.1
51 Lac La Biche	2143	5.7	317.2	2.8	187.9	20.5	—	—	6.5	—	37.9	252.8
52 Fort Vermilion	2005	11.2	230.5	1.8	88.2	34.8	—	—	81.4	1.7	525.5	731.6
54 East Smoky	1816	36.2	223.9	3.2	—	10.3	—	0.3	12.1	9.0	—	31.7
60 Three Hills	1658	21.5	257.4	2.9	—	44.4	—	14.3	1.1	16.1	—	75.9
61 Northland	1394	21.6	540.1	0.3	—	133.9	1.1	2.9	195.6	—	883.6	1217.1
62 Drumheller	1386	15.5	80.9	0.4	52.2	1.0	1.4	21.6	—	—	—	76.2
63 Crowsnest Pass	1437	11.2	58.6	0.1	121.3	3.8	0.5	20.1	—	—	—	145.7

TABLE III.35 (continued)
1979 Equalization Grants Study

Jurisdiction Name	Eligible Enrol-ment	Equal Assess. /Res. Pupil $1000s	Trans-port. Exp./ Elig. Pup. $	Route Dis-tance /Elig. Pup. km	Grants/Eligible Pupil ($ s)							
					Supple. Requis. Equal.	Small School	Small Juris.	Dec-lining Enrol.	Loca-tion Allow.	Priv. School Open.	Incre-mental	Total
Counties												
1 Grande Prairie	3114	12.1	323.6	2.9	96.4	18.8	—	—	1.5	1.9	—	118.6
2 Vulcan	1193	22.6	363.8	6.0	—	52.9	4.1	29.2	0.4	—	—	86.6
3 Ponoka	2846	13.1	202.1	2.1	105.6	16.0	—	9.5	0.2	—	—	131.3
4 Newell	1560	19.1	330.8	3.5	—	54.1	—	—	1.2	19.3	—	74.6
5 Warner	1728	12.9	243.1	2.8	97.7	48.6	—	—	3.2	—	—	149.5
6 Stettler	907	26.5	468.2	6.5	—	106.0	12.8	38.8	4.1	39.1	—	200.8
7 Thorhild	893	12.7	309.4	3.0	92.1	21.8	11.9	33.1	—	—	7.0	165.9
8 Forty Mile	1102	20.4	473.6	5.2	—	71.1	6.3	5.0	4.2	—	—	86.6
9 Beaver	1915	15.0	251.0	2.6	72.0	3.6	—	3.7	0.3	—	—	76.9
10 Wetaskiwin	1996	14.0	382.5	2.7	91.4	26.0	—	4.9	—	—	—	122.3
11 Barrhead	2326	11.2	217.6	2.4	120.7	31.2	—	1.3	—	5.1	—	158.3
12 Athabasca	2109	12.7	357.1	—	109.8	15.0	—	19.3	0.3	—	—	144.4
13 Smoky Lake	1028	13.9	270.8	2.9	103.6	33.9	7.8	5.3	0.6	—	—	151.2
14 Lacombe	3559	15.3	189.2	1.7	76.4	12.9	—	10.2	0.4	—	—	99.9
16 Wheatland	1916	28.6	318.2	3.0	—	47.4	—	—	2.1	—	—	49.5
17 Mountain View	4069	19.1	167.9	2.2	42.3	4.3	—	—	—	8.6	—	55.2
18 Paintearth	1006	28.0	289.5	3.5	—	28.8	8.4	—	0.6	—	—	37.8
19 St. Paul	1371	7.4	419.0	4.4	223.3	27.7	1.4	—	5.3	—	—	257.7
20 Strathcona	23774	22.5	121.5	0.6	—	—	—	—	0.1	2.0	—	2.1
21 Two Hills	1148	14.9	286.9	2.9	78.7	33.3	4.6	38.0	—	—	—	154.6
22 Camrose	2048	13.4	278.8	3.0	91.7	37.2	—	—	0.3	24.1	—	153.3
23 Red Deer	4650	15.3	209.5	1.8	74.2	6.1	—	—	0.1	—	—	80.4
24 Vermilion River	2105	13.8	359.2	3.7	86.2	38.6	—	—	3.5	—	—	128.3
25 Leduc	6170	17.4	191.1	0.6	52.3	—	—	—	0.2	—	—	52.5
26 Lethbridge	2838	11.9	203.7	1.6	123.2	30.6	—	—	1.4	15.8	—	171.0
27 Minburn	1900	17.3	250.0	2.3	28.1	34.2	—	2.4	0.7	—	—	65.4
28 Lac Ste. Anne	3357	16.1	295.5	2.3	46.0	6.7	—	11.2	—	—	—	63.9
29 Flagstaff	2080	15.7	231.2	2.5	51.4	32.4	—	13.6	0.5	0.5	—	98.4
30 Lamont	1735	14.0	276.9	2.3	93.9	6.5	—	—	—	—	—	100.4
31 Parkland	9222	21.5	181.4	1.2	18.3	—	—	—	—	—	—	18.3

TABLE III.35 (continued)
1979 Equalization Grants Study

Jurisdiction Name	Eligible Enrol- ment	Equal Assess. /Res. Pupil ($000s)	Trans- port. Exp./ Elig. Pup. ($)	Route Dis- tance /Elig. Pup. (km)	Grants/Eligible Pupil ($ s) Supple. Requis. Equal.	Small School	Small Juris.	Dec- lining Enrol.	Loca- tion Allow.	Priv. School Open.	Incre- mental	Total
Public School Districts												
3 St. Albert	2534	13.3	76.9	—	86.9	—	—	—	—	—	—	86.9
7 Edmonton	60387	31.8	52.1	—	—	—	—	5.9	—	—	0.4	6.3
19 Calgary	79064	26.3	58.4	—	—	—	—	0.3	—	—	—	0.3
51 Lethbridge	7337	22.7	51.0	—	5.7	—	—	1.6	—	—	—	7.3
76 Medicine Hat	5552	20.6	31.2	—	24.1	1.6	—	5.3	—	2.1	—	33.1
102 Banff	418	83.9	—	—	—	—	37.3	72.0	—	—	—	109.3
104 Red Deer	6214	19.7	25.9	—	40.1	—	—	—	—	—	—	40.1
168 Canmore	555	33.9	8.2	—	—	—	32.3	—	—	—	—	32.3
264 Wetaskiwin	1709	18.4	33.1	—	30.0	7.0	—	—	—	—	—	37.0
647 Stirling	207	9.3	83.6	0.6	132.4	51.1	40.7	—	—	—	—	224.2
1315 Camrose	1875	20.7	21.6	—	15.1	5.6	—	—	—	—	—	20.7
1475 Stettler	1337	14.7	8.9	—	65.9	—	2.2	—	—	—	—	68.1
1699 Exshaw	73	89.6	—	—	—	145.3	51.4	67.2	—	—	—	263.9
1738 Legal	384	16.3	169.4	1.2	83.4	25.5	37.6	—	—	—	—	146.5
Lloydminster	1468	15.8	—	—	62.8	6.5	1.0	—	—	—	—	70.3
2092 Brooks	2004	15.2	23.5	0.1	56.7	—	—	—	—	—	—	56.7
2228 St. Paul	730	14.7	28.1	0.1	82.4	11.9	18.1	28.8	—	—	—	141.2
2283 Redcliff	643	11.7	48.7	0.2	145.3	—	24.7	—	—	—	—	170.0
2357 Grande Prairie	3371	16.3	66.9	—	51.9	6.8	—	—	—	0.7	—	59.4
2665 Bonnyville	674	13.1	76.1	0.6	114.7	2.4	23.7	—	—	—	—	140.8
2833 Fort McMurray	4420	34.7	27.9	0.1	5.6	2.6	—	—	50.2	—	—	58.4
3063 Jasper	577	37.7	30.1	—	—	—	27.9	46.2	—	—	—	74.1
4152 Seebe	15	63.6	—	—	—	283.0	134.6	103.6	—	—	—	521.2
4233 Waterton Park	20	53.0	—	—	—	328.7	95.5	—	—	—	—	424.2
4910 Grovedale	106	6.5	435.5	6.4	242.4	34.0	47.1	—	—	—	—	323.5
4972 Devon	1068	14.6	15.6	—	52.9	—	7.3	—	—	—	—	60.2
5109 Swan Hills	460	48.7	137.8	0.9	—	—	37.2	—	18.2	—	—	55.4
5258 Grande Cache	992	25.4	41.4	0.1	—	3.0	8.3	67.2	—	—	—	78.5

TABLE III.35 (continued)
1979 Equalization Grants Study

Jurisdiction Name	Eligible Enrolment	Equal Assess. /Res. Pupil ($000s)	Transport. Exp./ Elig. Pup. ($)	Route Distance /Elig. Pup. (km)	Grants/Eligible Pupil ($ s)							
					Supple. Requis. Equal.	Small School	Small Juris.	Declining Enrol.	Location Allow.	Priv. School Open.	Incremental	Total
Roman Catholic Separate School Districts												
1 Calgary	21278	16.4	72.8	—	56.9	—	—	1.6	—	—	1.2	59.7
7 Edmonton	26728	22.9	58.3	—	14.4	—	—	4.4	—	—	—	18.8
9 Lethbridge	2095	19.9	72.2	—	10.7	—	—	6.9	—	—	—	17.6
15 Wetaskiwin	224	5.7	63.2	—	237.1	12.8	40.2	—	—	—	—	290.1
16 Vegreville	254	24.0	41.8	—	—	44.9	39.6	—	—	—	—	84.5
17 Red Deer	1420	14.6	55.9	—	100.3	1.4	1.0	—	—	—	—	102.7
18 Pincher Creek	315	8.4	25.8	—	85.7	7.4	38.5	60.1	—	—	—	191.7
21 Medicine Hat	1914	14.1	55.6	—	81.4	8.2	—	5.7	—	—	—	95.3
23 Theresetta	132	12.5	4.5	—	69.0	122.6	43.4	52.8	—	—	—	287.8
25 Drumheller	246	10.1	83.0	—	150.6	0.9	39.6	96.3	—	—	—	287.4
26 Fort Vermilion	110	6.1	65.9	—	159.9	85.9	45.5	—	68.6	—	—	359.9
28 Grande Prairie	1235	9.2	51.6	—	102.2	0.3	4.9	—	—	—	—	107.4
30 McLennan	179	4.8	115.0	1.0	211.4	101.2	41.5	216.6	—	—	—	570.7
31 Wainwright	248	9.5	24.1	—	131.5	2.8	40.5	—	—	—	—	174.8
32 Fort McMurray	1811	20.4	151.8	0.2	136.8	3.3	—	—	51.7	—	—	191.8
35 St. Thomas More	386	8.0	—	—	77.8	—	37.6	—	—	—	—	115.4
36 Spirit River	93	7.0	—	—	105.1	117.8	47.5	—	—	—	—	270.4
37 Rosary	192	10.4	31.7	—	59.7	4.5	40.7	18.2	—	—	—	123.1
43 Peace River	711	7.8	83.2	0.3	122.2	—	21.8	—	—	—	—	144.0
49 Killam	40	15.6	13.5	—	70.3	189.3	62.0	258.5	—	—	—	580.1
50 Assumption	77	8.3	—	—	210.1	142.1	50.6	64.5	—	—	—	467.3
51 Sexsmith	87	11.5	—	—	115.1	122.9	47.6	—	—	—	—	285.6
54 Taber	534	13.2	16.1	—	71.1	—	32.7	—	—	—	—	103.8
56 High Prairie	385	6.7	11.5	—	98.6	—	37.8	26.0	—	—	—	162.4
60 Camrose	454	9.5	22.9	—	185.9	6.0	37.3	65.6	—	—	—	294.8
64 Cold Lake	228	6.5	15.5	—	123.8	39.2	39.9	—	—	—	—	202.9
65 Provost	231	11.7	—	—	87.0	37.6	39.8	34.6	—	—	—	199.0
67 Grand Centre	189	6.9	29.1	0.2	178.0	13.3	41.2	10.5	—	—	—	243.0
68 Beaverlodge	97	2.7	3.1	—	185.7	128.9	47.9	11.3	—	—	—	373.8
73 Coaldale	250	7.9	43.8	—	184.1	—	39.4	21.0	—	—	—	244.5

TABLE III.35 (continued)

1979 Equalization Grants Study

Jurisdiction Name	Eligible Enrolment	Equal Assess. /Res. Pupil ($000s)	Transport. Exp./ Elig. Pup. ($)	Route Distance /Elig. Pup. (km)	Grants/Eligible Pupil ($ s)							
					Supple. Requis. Equal.	Small School	Small Juris.	Declining Enrol.	Location Allow.	Priv. School Open.	Incremental	Total
Roman Catholic Separate School Districts (continued)												
79 Picture Butte	128	14.6	19.3	—	75.9	71.5	43.8	110.0	—	—	—	301.2
82 Bow Island	167	11.0	9.6	—	113.4	94.3	41.7	117.8	—	—	—	367.2
84 Valleyview	136	6.9	49.2	—	123.3	85.6	43.9	—	—	—	—	252.8
88 Grimshaw	187	6.9	75.1	0.5	108.5	11.4	40.8	—	—	—	—	160.7
94 Whitecourt	479	7.3	39.2	0.1	161.5	6.5	37.4	—	—	—	—	205.4
95 Ponoka	70	26.5	32.4	—	86.2	139.3	50.3	226.5	—	—	—	502.3
96 Nampa	53	12.6	57.9	—	92.9	177.0	59.0	166.0	—	—	—	494.9
97 Vermilion	347	9.3	27.3	—	113.5	—	38.2	16.2	—	—	—	167.9
104 Fort Saskatchewan	651	15.1	45.0	0.2	44.0	—	27.3	—	—	—	—	71.3
105 Sherwood Park	2325	10.0	110.8	0.5	148.0	2.4	—	—	—	—	—	150.4
110 Westlock	404	14.8	41.1	0.1	69.0	2.6	37.5	16.5	—	—	—	125.6
111 Drayton Valley	389	10.2	16.6	—	158.8	—	37.8	—	—	—	—	196.6
128 Spruce Grove	172	35.8	115.6	2.4	27.8	—	20.9	—	—	—	—	48.7
Lloydminster	235	13.9	—	—	138.0	19.4	39.9	—	—	—	—	197.3
Consolidated School Districts												
8 Barons	62	28.7	337.0	4.4	—	162.4	55.5	—	—	—	—	217.9
38 Lousana	37	21.4	331.9	2.7	—	215.6	68.3	27.7	—	—	—	311.6
69 Falher	426	12.4	172.3	1.3	82.1	50.8	37.4	31.8	—	—	—	202.1
Roman Catholic Public School Districts												
35 Thibault	939	13.2	49.7	0.2	82.1	3.2	13.1	—	—	—	—	98.4
Protestant Separate School Districts												
5 Glen Avon	397	14.8	18.2	—	79.7	—	37.6	—	—	—	—	117.3
6 St. Albert	4719	13.4	66.6	—	89.0	1.5	—	—	—	—	—	90.5

CHAPTER IV

TAXATION AND ASSESSMENT ISSUES IN EDUCATIONAL FINANCE

Peter C. Nichols & Associates Ltd.; Edmonton, Alberta; 1981
This chapter is substantially reproduced from the original report.

I. INTRODUCTION

This report was commissioned by the Planning and Research Branch of Alberta Education in September 1980. The objectives of the study were to provide an overview of the taxation and assessment process, and to analyze the past and projected levels, composition, and sources of school board revenues and education taxes.

Section II provides an overview of education funding and discusses the various components of school board revenues. Section III describes the property assessment and taxation process. Section IV analyzes the growth in educational taxes and changes in their composition; in addition, the current property tax burden is compared for several municipalities. Section V formulates projections of school board revenues and expenditures to 1985 and analyzes the projected changes in the levels and composition of school taxes. Section VI compares the relative provincial and local shares of education revenues for Ontario and the four western provinces. Section VII provides a brief summary of the report.

II. OVERVIEW OF THE FUNDING OF EDUCATION

A. Introduction

The revenues of local school authorities in Alberta can be separated into four major categories: School Foundation Program Fund (SFPF), other provincial grants, supplementary requisitions from municipalities, and miscellaneous revenues. SFPF includes basic instruction, transportation and administration grants plus debt service support. It is funded in part by a provincially-set tax levy on all commercial and industrial property with the remainder funded from the general revenues of the province. Other provincial grants provide specific support for various programs and unique local conditions including early childhood services, community schools, special education, handicapped pupils, remote location and declining enrolment. Supplementary requisitions are the amounts raised through local property taxes and are budgeted to provide the difference between revenues from other sources and total expenditures. Miscellaneous revenues include such items as tuition fees, transportation charges and receipts from the sale and rental of books.

Table IV.1 and Figures IV.1 and IV.2 show how the amount and relative proportion of each revenue category have changed since 1950. The provincial share of school funding increased consistently between 1950 and 1975, from 25% to 71%. Since 1975, the provincial share has decreased somewhat, and amounted to 63% in 1979. It is expected to lower again in 1980.

The major categories of educational funding are discussed below.

B. The School Foundation Program Fund

SFPF was established by the province in 1961 to assure the provision of a minimum standard of educational services by local boards in Alberta. If additional programs were desired by a particular board, the required revenues could be raised through local sources such as Supplementary Requisitions. SFPF grants to school boards are comprised of both operating and capital components. The operating component, covering instruction, transportation and administration functions, was based initially on a number of factors including the number of pupils, the number and education levels of teaching staff, the number of buses, and actual transportation costs. In 1970, the instruction grants were simplified and became based on classroom units (CRU), which were dependent only on the number of students and grade levels. Subse-

TABLE IV.1

Distribution of Revenues of Local School Authorities in Alberta, 1950 to 1979.

	1950		1955		1960		1961		1965		1970		1975		1979	
	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%	$000	%
Revenues from Province																
SFPF from general revenues[1]							53,989	46.3	76,024	46.1	185,098	54.4	368,724	60.0	501,471	52.3
Other Provincial Grants	6,408	25.2	15,835	32.4	40,243	44.9	1,316	1.1	2,563	1.1	8,785	2.6	61,894	10.1	86,784	9.0
Property Tax Rebates[2]	—		—		—		—		—		14,049	4.1	3,939	0.6	19,687	2.1
Net Provincial Sources	6,408	25.2	15,835	32.4	40,243	44.9	55,305	47.4	78,587	47.7	207,932	61.1	434,557	70.7	607,942	63.4
Revenues from Local Sources																
SFPF from Local Property Tax							52,349	44.9	66,349	40.2	95,509	28.1	53,184	8.7	91,062	9.5
Supplementary Requisitions	17,782	70.1	31,284	64.0	46,671	52.1	6,324	5.4	15,772	9.6	38,847	11.4	106,963	17.4	232,623	24.3
Less: Property Tax Rebates[3]	—		—		—		—		—		(14,049)	(4.1)	(3,939)	(0.6)	(19,687)	(2.1)
Net Local Property Taxes	17,782	70.1	31,284	64.0	46,671	52.1	58,673	50.3	82,121	49.8	120,307	35.4	156,208	25.4	303,998	31.7
Other Revenues	1,191	4.7	1,751	3.6	2,714	3.0	2,707	2.3	4,151	2.5	12,002	3.5	23,771	3.9	47,245	4.9
TOTAL REVENUES	25,381	100.0	48,870	100.0	89,628	100.00	116,684	100.0	164,859	100.0	340,241	100.0	614,536	100.0	959,185	100.0

---

[1] 1961 was the first year of the School Foundation Program Fund.

[2] The Province provides property tax rebates to certain residential homeowners, in particular senior citizens, in order to reduce school taxes. Hence, the amount of these rebates has been added to the provincial share and subtracted from the local shares.

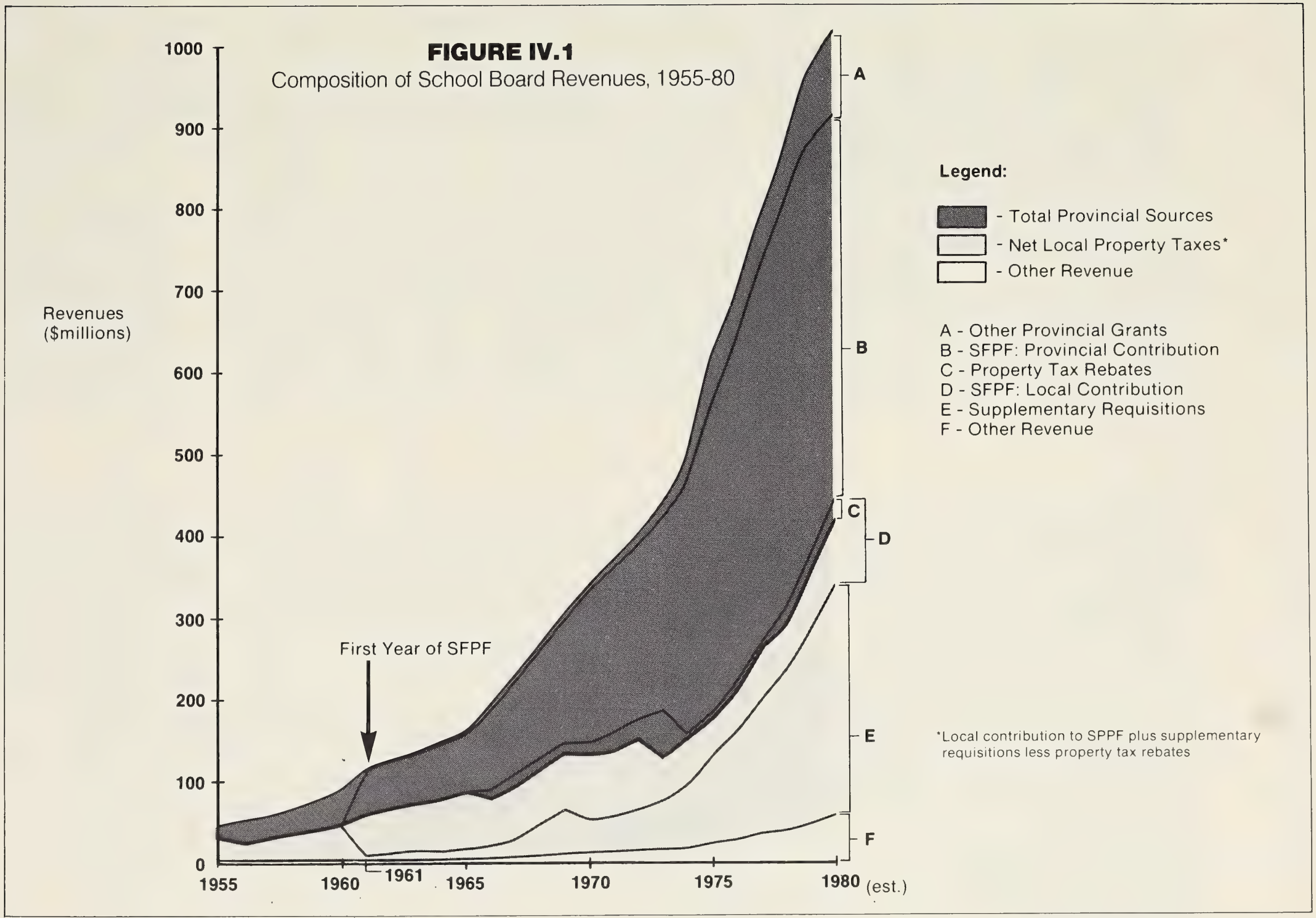
[3] Includes tuition fees, transportation charges and receipts from the sale and rental of books.

Note: Figures may not total exactly due to rounding.

Prepared by Peter C. Nichols & Associates Ltd. from various source documents provided by the Department of Education and the Department of Municipal Affairs.

FIGURE IV.1

Composition of School Board Revenues, 1955-80



*Local contribution to SPPF plus supplementary requisitions less property tax rebates

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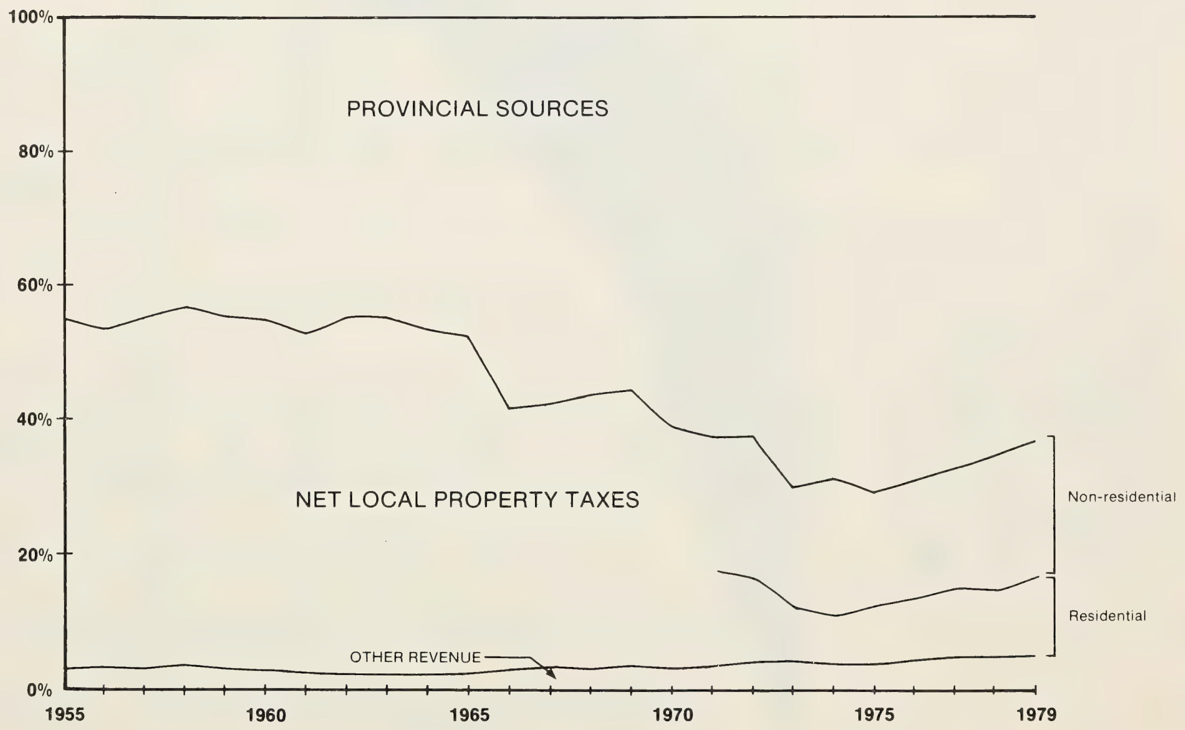
Peter C. Nichols & Associates Ltd.
December 1980

FIGURE IV.2

Relative Composition of School Board Revenues, 1955-79



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December 1980

quently, the procedure was further refined to be based directly on number of students. The capital or buildings component covers debt service obligations for the portion of school building debentures supported by SFPF (i.e., that part approved by the School Buildings Branch). The operating grant levels and the supported amounts of construction costs are normally adjusted each year to account for inflation.

In 1961, SFPF revenues contributed in excess of 90% to local school board expenditures. Approximately one-half of this amount was derived from a levy established by the province on real property, with the remainder of SFPF being funded from general revenues. The adoption of SFPF did not substantially alter the overall provincial versus local share of educational costs, although the provincial share would have increased in respect of those boards with relatively low assessment levels.

From its inception in 1961, the share of educational revenues accounted for by SFPF decreased until 1969, when it amounted to 77%. A change in the funding basis caused this share to increase temporarily to over 82% in 1970, followed by a further decline. The provincially-set levy on all real property was removed from residential property in 1974 and from farmland in 1975. These moves caused the SFPF portion of funding to drop to 69% in 1975. The SFPF currently generates approximately 60% of educational revenues.

Although the proportion of total revenues provided by SFPF has decreased substantially since 1961, the portion of SFPF funded by the general revenues of the province increased steadily until 1975; since 1975, it has decreased somewhat. In 1961, the provincial share was approximately 50% of SFPF revenues. By 1970, this share had increased to 66%. It rose to 87% in 1975 after the removal of residential property and farmland from the SFPF levy and has since declined to 85% of total SFPF revenues.

C. **Other Provincial Grants**

Prior to the creation of SFPF, Alberta Education established a number of grant programs that provided a continually increasing share of total revenues. In 1950, one-fourth of school board revenues were obtained from provincial grants. By 1960, this proportion had risen to 45%. With the SFPF in existence, the need for additional grant programs was greatly reduced and in 1961, grants under those programs amounted to only 1% of revenues. The number of special grant programs has increased to over 20 at the present time, including Early Childhood Services (ECS) instructional grants, based on the number of ECS students; instructional grants for handicapped and special students; requisition equalization grants to assist school districts with poor assessment bases; funds to compensate for the remote location of schools; and grants to assist the operation of community schools. These other provincial grant programs currently amount to 9% of total revenues.

D. **Supplementary Requisitions**

Supplementary Requisitions comprise the local tax revenues derived by school boards to cover expenditures not funded by other sources of revenue. A school board requisitions the appropriate municipalities for the necessary funds. The amount is prorated to each municipality on the basis of equalized assessments available to the board. The municipalities then establish a levy against their taxable, i.e., "live", assessment base to raise the required revenues. The taxation and assessment process is further discussed in Section III.

Prior to the establishment of SFPF, supplementary requisitions were the major source of revenue for school boards. In 1959, 70% of revenues were derived through requisitions; by 1960, this figure had declined to 52%. One of the purposes of SFPF was to reduce the reliance on local taxation by school boards and in 1961, the first year of SFPF, supplementary requisitions amounted to only 5% of educational revenues. It might be noted, however, that although the total amount raised through local taxation remained approximately the same, these taxes were apportioned throughout the province more on the basis of local ability to pay, because SFPF tax revenues were based on equalized assessments and pooled for the entire province. Supplementary requisitions have generally increased in importance as a source of revenues since the introduction of the SFPF and presently account for approximately one-fourth of total revenues. The net effect of these local school taxes is somewhat less if various property tax rebates, discussed in Part F below, are included.

E. **Other Revenue**

School jurisdictions derive other revenue such as tuition fees (mainly from the Federal Department of Indian and Northern Affairs), school transportation fees, and revenues from the sale and rental of books. This category also includes revenue received by a school board from other boards, e.g., under tuition agreements. Hence, there is some "double counting" of revenue when provincial totals are obtained. However, this inter-board revenue is not considered to be significant; it is estimated to amount to less than ½% of total revenues.

Since 1950, these other revenues have amounted to between 2% and 5% of total revenues. The percentage has increased somewhat, from 4% to 5% during the past five years, and this increasing use of other revenue sources by school boards may reflect efforts to reduce increases in supplementary requisitions.

F. Property Tax Reduction

In 1966, the Homeowners' Tax Discount Act was passed by the province which established a discount, or rebate, of up to $50 on property taxes on the principal residence. The primary purpose of this rebate was to reduce local school taxes; therefore the amounts disbursed under the initial and subsequent rebate programs are considered to reduce the local share of school board revenues and increase the province's share. This rebate program initially amounted to approximately 5% of total revenues.

In 1969, increased rebates were provided for senior citizens in receipt of the guaranteed income supplement. The limit of the general rebate was increased to $75 in 1971 and subsequently to $216 in 1973 with the passage of the Alberta Property Tax Reduction Act. Increased benefits were also provided for senior citizens. In 1973, total property tax rebates amounted to $57 million, or 13% of total school board revenues; this reduced the local taxation share from an apparent 39% (SFPF levy plus supplementary requisitions) to 26% of total revenues.

In 1974, the Property Tax Reduction Act was amended to remove residential property and farmland from the SFPF levy. Consequently, the amount of actual rebates was reduced substantially to under $4 million, or 0.6% of school board revenues, in 1975. The exemption of residential property and farmland is not considered a rebate in this report; rebates are defined to include only those amounts reimbursed to homeowners by Alberta Municipal Affairs. In 1978, the amount of rebates increased to almost $20 million, when the minimum reduction in property taxes, including the effect of removing the SFPF levy, was increased to $400 from $200 per senior citizen household; and to $200 from $100 for other homeowners. At that time, the higher rebate figure was extended to all senior citizen homeowners, rather than to only those in receipt of the guaranteed income supplement. These rebates presently amount to approximately 2% of total school board revenues.

G. Provincial versus Local Funding

As discussed in the previous section, property tax rebates should be included in the calculation of the local and provincial portions of school board revenues. The share derived through local taxation (on real property) declined from 70% in 1950 to 52% in 1960, to 35% in 1970, and to 25% in 1975. Since 1975, school board expenditures have been increasing at a higher rate than provincial grants and with this, the local share of revenues increased to 32% in 1979 and is expected to be somewhat higher in 1980.

The current provincial and local shares of education revenues in Alberta are compared with those of other provinces in Section VI.

III. OVERVIEW OF ASSESSMENT PROCEDURES

A. Live and Equalized Assessments

In Alberta, two assessment bases are used in determining education taxes. Live, or taxable, assessments are used by municipalities to determine the taxes to be paid by each property owner. Live assessments for different municipalities are not necessarily based on property values and construction costs for the same year and therefore are not usually comparable. Equalized assessments, which are derived from live assessments, are determined each year by the Assessment Equalization Board and are intended to reflect reasonably current values and costs. Since equalized assessments for all municipalities are adjusted to the same year, they are comparable between municipalities.

Equalized assessments have two main uses in school taxation. For school jurisdictions comprising portions of more than one municipality, supplementary requisitions are prorated to each municipality on the basis of the equalized assessments available to the school authority. SFPF revenues from each municipality are determined by multiplying a uniform provincial mill rate by the equalized assessment base of the municipality, excluding residential property and farmland. In both cases, the taxes paid by property owners are based on live assessments; a mill rate is determined by each municipality by dividing the revenue required by the appropriate live assessment base. The assessment process is described in detail in Figure IV.3.

Equalized assessments are also used for determining municipalities' shares of other requisitions, such as for hospital boards and senior citizens home foundations. In addition, equalized assessments are employed in the calculation of certain provincial grants, including the requisition equalization grant from Alberta Education and the recently amended lodge assistance grant from Alberta Housing and Public Works. Both of the grant programs are intended to assist those jurisdictions with high requisitions due to low assessment bases. In general, equalized assessments, on a total or a per capita basis, are used as indicators of the relative wealth of local jurisdictions.

B. **Assessment Growth**

Increases in live property assessments must be viewed with caution because they do not necessarily represent increased wealth or ability to pay. When a municipality conducts a general assessment, live assessed values increase substantially, even without any real growth, because of increases in property values and construction costs that have occurred since the previous assessment. Municipalities that have recently completed general assessments have live assessment bases that are disproportionately large compared to other jurisdictions relying on a more historical tax base. Provincial totals of municipal live assessments are therefore of limited usefulness as a true measure of real wealth. A vivid example of this is contained in Table IV.2: the doubling of live assessments from 1978 to 1979 was mainly due to a new general assessment in Edmonton, which caused its assessment base to increase from $2 billion to $8 billion.

One possible method of estimating the real growth of assessment bases is to calculate the increases in live assessment for those municipalities which have not conducted general assessments. For the years 1976 to 1979, these increases averaged 5% to 6% per year, with the assessments of centers growing at a somewhat faster rate than rural areas.

The growth in equalized assessments that has occurred over time reflects real growth in the economy, as measured by the construction and development of new buildings and equipment, adjustments for changes in market value and replacement costs, and periodic changes in assessment procedures.

Table IV.2 shows the changes that have occurred over time in total equalized assessments, and that portion subject to SFPF. The decrease in 1975 of the assessments subject to SFPF was due to the removal

TABLE IV.2

Total Live and Equalized Assessments in Alberta, 1974 to 1980.

	LIVE ASSESSMENTS[1]		TOTAL EQUALIZED ASSESSMENTS		EQUALIZED ASSESSMENTS SUBJECT TO SFPF	
	$ Millions	% Change Over Previous Year	$ Millions	% Change Over Previous Year	$ Millions	% Change Over Previous Year
1974	5,114	—	4,931	—	2,299	—
1975	5,863	14.6	5,822	18.1	2,069	−10.0
1976	6,410	9.3	5,346	− 8.2	2,211	6.9
1977	6,914	7.9	6,333	18.5	2,609	18.0
1978	8,022	16.0	7,436	17.4	2,964	13.6
1979	15,917	98.4	8,739	17.5	3,512	18.5
1980	—	—	11,926	36.5	4,822	37.3

[1] Includes rural electric power and pipeline assessment.

Source: The Assessment Equalization Board.

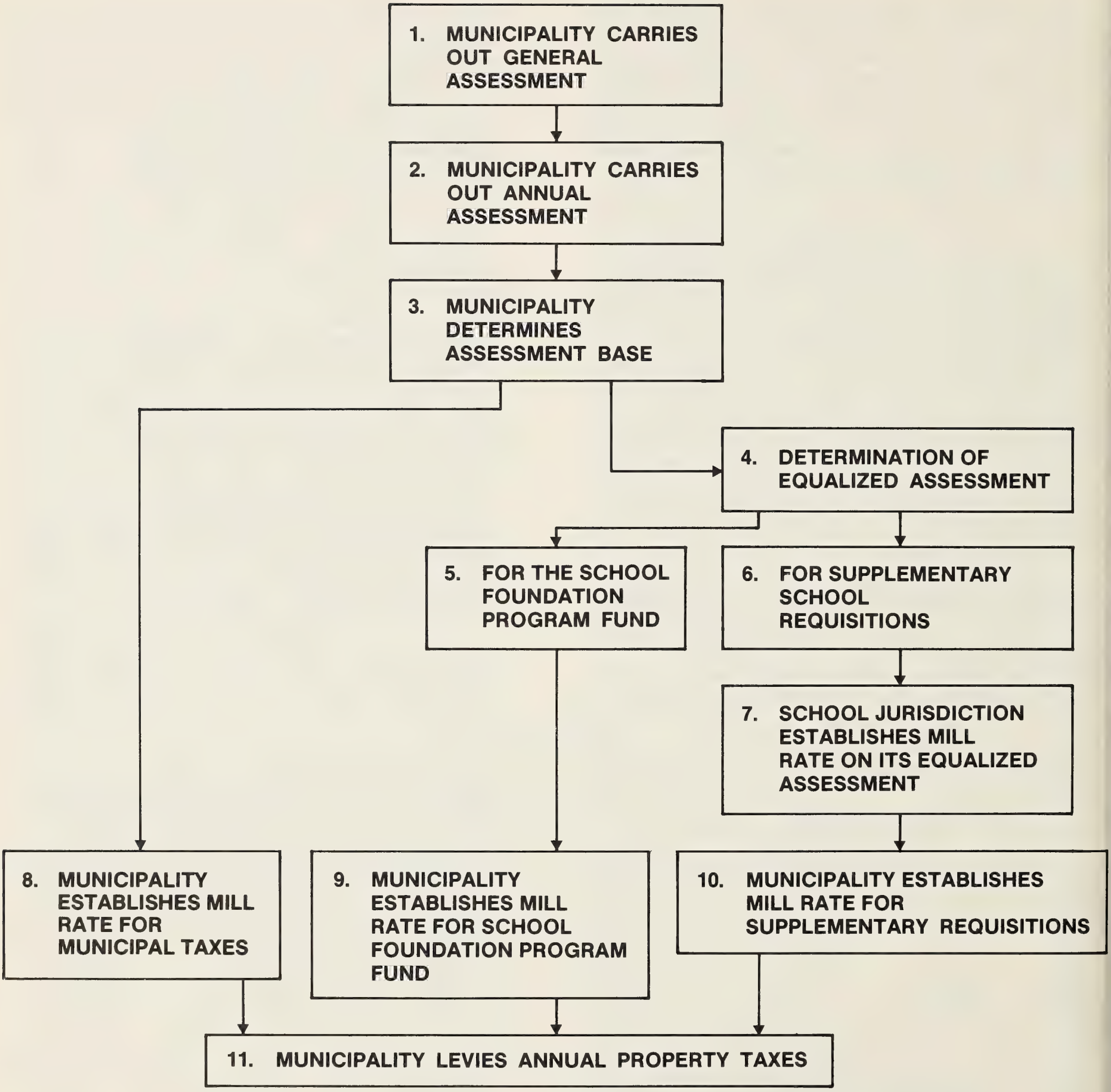
1. MUNICIPALITY CARRIES OUT GENERAL ASSESSMENT
2. MUNICIPALITY CARRIES OUT ANNUAL ASSESSMENT
3. MUNICIPALITY DETERMINES ASSESSMENT BASE
4. DETERMINATION OF EQUALIZED ASSESSMENT
5. FOR THE SCHOOL FOUNDATION PROGRAM FUND
6. FOR SUPPLEMENTARY SCHOOL REQUISITIONS
7. SCHOOL JURISDICTION ESTABLISHES MILL RATE ON ITS EQUALIZED ASSESSMENT
8. MUNICIPALITY ESTABLISHES MILL RATE FOR MUNICIPAL TAXES
9. MUNICIPALITY ESTABLISHES MILL RATE FOR SCHOOL FOUNDATION PROGRAM FUND
10. MUNICIPALITY ESTABLISHES MILL RATE FOR SUPPLEMENTARY REQUISITIONS
11. MUNICIPALITY LEVIES ANNUAL PROPERTY TAXES

FIGURE IV.3

Municipal Assessment and Taxation Process.

1. Municipality Carries Out General Assessment

- can remain effective for up to 7 years.
- a general assessment carried out in 1980 relies on 1979 market values as a base and would become effective for tax purposes in 1981.
- tax exempt properties that normally pay grants-in-lieu of taxes are included in the general assessment.
- exempt properties such as schools, churches, municipal buildings are valued also, but not included in the assessment roll.

Urban municipalities

- land assessed at 65% of market value (for the year preceding general assessment).
- buildings assessed at 65% of 1977 costs, which in turn are factored to equate to costs in year preceding general assessment. Depreciation allowances deducted.
- machinery and equipment assessed at the same rate (65%) as buildings.
- note: some municipalities still operate under old assessment procedures which call for buildings to be assessed at either 65% or 45% of 1963 costs and machinery and equipment at one-half that rate.
- land occupied by mobile homes is valued as above, whether leased or owner-occupied; however, if the land is owned by occupant, the home is assessed as for other dwellings, if the land is rented, the mobile unit is not assessed but subject to mobile licence fee.

Rural Municipalities

- farm residences receive an exemption equivalent to a 1980 replacement cost of $50,000.
- other farm buildings not assessed.
- farmland assessed on agricultural rating of approximately 65% of economic value (maximum $240 per acre).
- other buildings assessed at 65% of 1977 depreciated costs, factored to equate to costs in year preceding general assessment.
- non-farmland assessed at 65% of market value. For parcels that exceed 3 acres, market value is applied to the greater of the area developed or 3 acres; the remaining area is assessed as farmland.
- machinery and equipment assessed at the same rate for buildings.
- electric power and pipelines are assessed at 65% of current replacement costs, with an immediate and fixed depreciation of 25%.
- railways, main and branch lines, are assessed at $10,000 per mile.
- oil well lease sites on Crown land are assessed at $1000 per well.
- generating, metering, regulating, communications and substation equipment are assessed at 65% of current depreciated cost.
- note: most rural municipalities operate under old assessment procedures with farm residences exempt, farm land assessed to a maximum of $40 per acre, buildings at 45% of 1963 cost, machinery and equipment at half that rate, and other improvements at much lower rates than above. All rural municipalities must complete a general assessment under the new procedures by 1985.

2. Municipality Carries Out Annual Assessment

- each year between general assessments.
- no change made to original general assessment values except for machinery and equipment, which is depreciated annually.
- properties added in the previous year are assessed on same basis as prevailing general assessment (i.e., same market base is taken).
- if municipality has a supplementary assessment bylaw, properties added during the year are immediately assessed and a proportionate share of annual property taxes levied; otherwise, assessments aren't added until the following full taxation year.

3. Municipality Determines Assessment Base, Including:

- commercial, industrial, residential land (including farmland and vacant residential).
- commercial, industrial, residential buildings.
- machinery and equipment.
- power lines, pipelines, railway rights of way.

4. Determination Of Equalized Assessment

- responsibility of Assessment Equalization Board.
- major purpose: to arrive at a common base for all municipalities for the levying of supplementary requisitions by school authorities and the School Foundation Program Fund by the Province.
- equalized assessment for a given year is based on previous year's actual assessment. (Except where

a new general assessment is in force — in that case the new assessment is used with property additions over the previous year deleted.)

— the following adjustments are made to actual assessments to yield equalized assessments (assume 1980 equalized assessment being determined below):

— land: the average relationship of actual assessment to market value in the municipality in 1978 is estimated. An equalized assessment is computed, based on 20% of market value.

— buildings: assessments are adjusted to 20% of current replacement costs, less 1% depreciation for each year since the general assessment.

— machinery and equipment currently 10% of depreciated replacement cost; proposed to increase to 20%.

— farmland assessed at 13.5% of economic value; proportion to be increased to 16.5% for 1981 and to 20% for 1982 and subsequent years.

— licenced mobile trailers: equalized estimated on basis of licence revenue and mill rate to yield assessment equivalent.

— if the municipality has a supplementary assessment bylaw, assessments added during 1979 would be included in 1980 equalized assessments on an apportioned basis for the part of the year assessed.

5. For The School Foundation Program Fund

— province sets a mill rate to be levied against the total equalized assessment less the non-vacant residential portion and exempt farmland (non-corporate). In 1980, a mill rate of 21.5 was established.

— this is collected by each municipality on behalf of the Province at the same time as municipal property taxes and school requisitions.

6. For Supplementary School Requisitions

— municipality informs Assessment Equalization Board as to split in actual assessments between school boards. In an urban municipality the split is usually between a public and separate school system. In rural municipalities and improvement districts, school system boundaries may be such that the assessment base is split several ways.

— residential property owners normally must indicate their religious preference for the purpose of allocating taxes between separate and public systems; in the case of corporate property, the proportion of shareholders assigning to each school authority is used. If this designation is not given, the practice is to split the assessment on the basis of relative pupil enrolments.

— grants-in-lieu property assessments are apportioned on the basis of relative pupil enrolments.

7. School Jurisdiction Establishes Mill Rate On Its Equalized Assessment

— each school system is informed as to its share of the equalized assessment in the municipalities where its boundaries extend.

— the school board annually estimates its budgetary tax requirements and converts this to a mill rate on the total equalized assessments available to it. The amount for each municipality is calculated by multiplying the equalized assessment available to the board from the municipality by this mill rate.

— school boards are restricted to certain annual increases in tax levies — an 8% maximum increase in the mill rate is permitted. However, equalized assessments grow with inflation and municipal expansion and therefore compound the effective rate of increase in tax revenues. Beyond the authorized increases (which can be carried forward if not fully used in a given year) the school board may have to go to plebiscite to obtain local approval if petitions in opposition to the tax increases meet certain conditions.

8. Municipality Establishes Mill Rate For Municipal Taxes

— municipality estimates net budgetary requirements to be met by local taxes, and divides this amount by the assessment base (including grants-in-lieu assessments) to yield the required mill rate.

9. Municipality Establishes Mill Rate For School Foundation Program Fund

— knowing that 21.5 mills (in 1980) is required by the Province on all equalized assessments other than non-vacant residential and exempt farmland, the municipality calculates the total dollar levy required.

— the municipality then converts this dollar requirement to a mill rate equivalent on its actual assessment base (excluding the same exempt components).

10. Municipality Establishes Mill Rate For Supplementary Requisitions

— municipality is notified by each school authority as to the requisitions required. The municipality in turn converts this requirement to an equivalent mill rate on the actual assessment base that is allocated to that school system. The municipality forwards the requisition in quarterly installments.

11. Municipality Levies Annual Property Taxes

— total taxes collected by the municipality equal the sum of:

Total assessment x municipal mill rate = municipal taxes

Total assessment x supplementary mill rate = school taxes

Total assessment (less non-vacant residential and exempt farmland) x school foundation mill rate = School Foundation Program Funds

— Municipality remits the SFPF receipts to the provincial government.

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of farmland from the base in that year. In 1976, non-farmland was equalized at 20% of market value for both assessment bases, whereas prior to then it was equalized at 35% for the total base. No substantive changes in procedures occurred until 1980; hence, the increases from 1976 to 1979 consisted primarily of increases in market value and real growth. In 1980, two major changes were adopted that caused equalized assessments to increase by more than 35%. Farmland values were increased by 35%, to a rate of 13.5% from 10% of economic, i.e., productive, value, and by 1982 will be at 20% of productive value. Buildings and improvements are now equalized at 20% of replacement cost, less depreciation of 1% of replacement costs for each year since a general assessment, whereas previously they were equalized at a fixed percentage of 1963 costs, less a similar depreciation amount. This change will also result in larger increases in future years because the value of buildings and improvements will be inflated each year, whereas previously only land was adjusted each year. The impact of this and other changes on future equalized assessments is discussed later in Section V.

IV. ANALYSIS OF EDUCATION TAXES

A. Education Tax Levels

1. PAST GROWTH

Net education taxes, defined to include supplementary requisitions plus the local portion of SFPF less property tax rebates, have steadily increased on a per capita basis over the past 30 years, as shown in Figure IV.4. The three years, 1966, 1970 and 1973, where a decrease is shown correspond to the passage of the Homeowners' Tax Discount Act, the restructuring of SFPF grants to a classroom unit basis, accompanied by a local requisition "roll back", and the passage of the Alberta Property Tax Reduction Act, respectively. Net taxes expressed on a per student basis exhibit a similar pattern but with larger increases during the 1970s, due to declining enrolments. Also shown in Figure IV.4 are the supplementary requisitions per capita. Since 1961, these have consistently increased at a faster rate than total educational taxes.

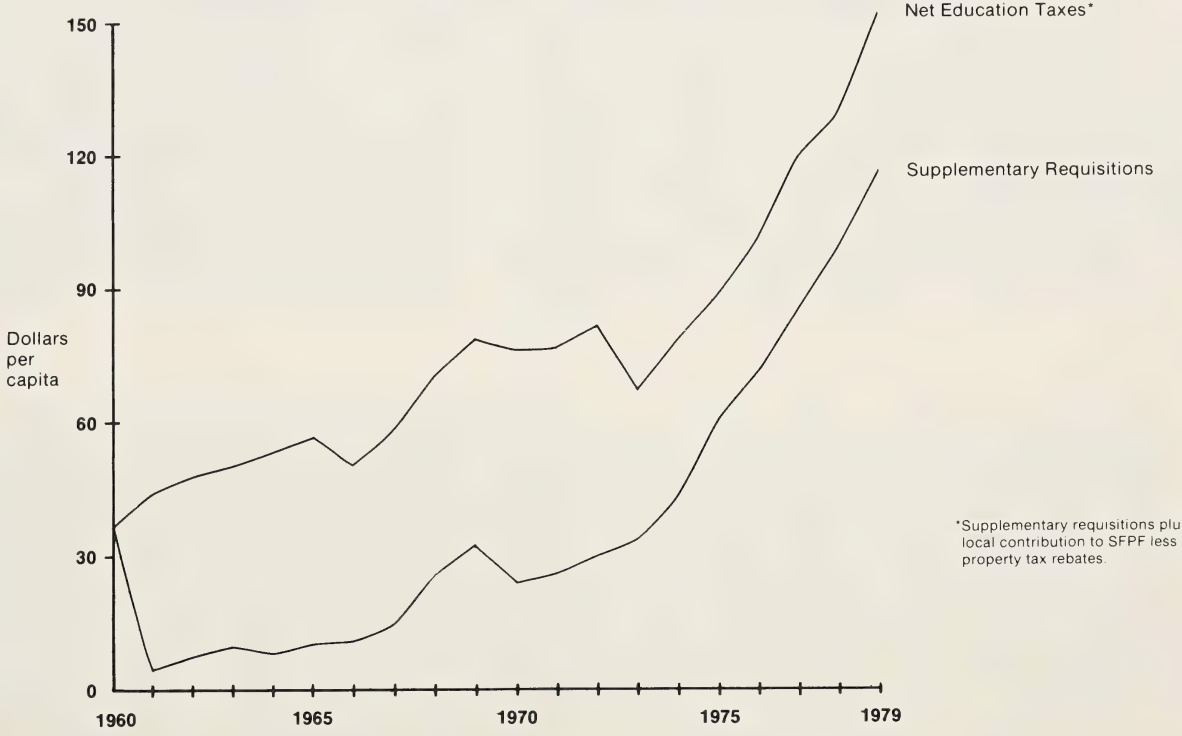
Three periods have been selected for comparing the growth of educational taxes with other indices: 1962-71, years of relatively low inflation; 1971-75, years of high inflation with increases in the provincial share of funding; and 1975-79, the recent trend, also with high inflation but with a decreasing provincial share of funding. Growth rates for each of these periods are given in Table IV.3 and depicted in Figure IV.5.

As shown in Table IV.3, from 1962 to 1975, school expenditures rose at a faster rate than educational taxes. The low growth in taxes from 1971 to 1975, and the actual decline in residential taxes in per capita terms, was primarily due to the removal of residential property and farmland from SFPF levy. From 1975 to 1979, per capita educational taxes increased at a rate of 14.4% per year compared with 8.4% per year for expenditures. Education taxes are also rising faster than incomes and other types of taxation. However, as will be discussed later in this section, education taxes in Alberta remain low when compared with those of other provinces.

The increasing importance of supplementary requisitions since the inception of SFPF was shown in Section II in terms of their proportion of total revenue; per capita and per student requisitions have also increased faster than expenditures for the three time periods shown. Since 1971, the growth in requisitions

FIGURE IV.4

Net Education Taxes and Supplementary Requisitions per Capita, 1960-79



*Supplementary requisitions plus the local contribution to SFPF less property tax rebates.

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Peter C. Nichols & Associates Ltd.
December 1980

TABLE IV.3

Growth Rates of Selected Indices: 1962 to 1979.

	1962-1971	1971-1975	1975-1979
	(Average Annual Percentage Change)		
Educational Indices			
Net Education Taxes[1] (per capita)	5.3	3.7	14.4
Residential Portion	—	− 1.6	18.7
Supplementary Requisitions (per capita)	14.9	23.1	17.6
Total School Expenditures (per capita)	10.6	11.0	8.4
Net Education Taxes (per pupil)	4.2	6.2	18.5
Supplementary Requisitions (per pupil)	13.7	26.0	21.8
Total School Expenditures (per pupil)	9.4	13.6	12.4
Other Indices			
Net Total[2] (per capita)	11.4	20.7	9.6
Municipal Property Taxes[3] (per capita)	4.9	14.5	7.8[4]
Federal and Provincial Income Taxes (per capita)	15.7	16.2	8.5
Personal Income (per capita)	7.5	16.3	11.2
Implicit Price Index	3.6	8.2	8.4
Housing Prices (Calgary and Edmonton)	—	18.8	10.7

Supplementary requisitions plus the local contribution to the SFPF less property tax rebates.

Not including Federal Oil Export Tax.

Includes Health and other non-education requisitions.

The 1975 to 1978 annual average increase was 10.9%; there was no increase in 1979, due primarily to the Municipal Debt Reduction Program.

Source: Prepared by Peter C. Nichols & Associates Ltd. from provincial tabulations, including the 1979 Alberta Economic Accounts, and Statistics Canada housing price indices (CANSIM matrix #85).

has outstripped that of other tax, income and price indices, as shown in Table IV.3 and Figure IV.4.

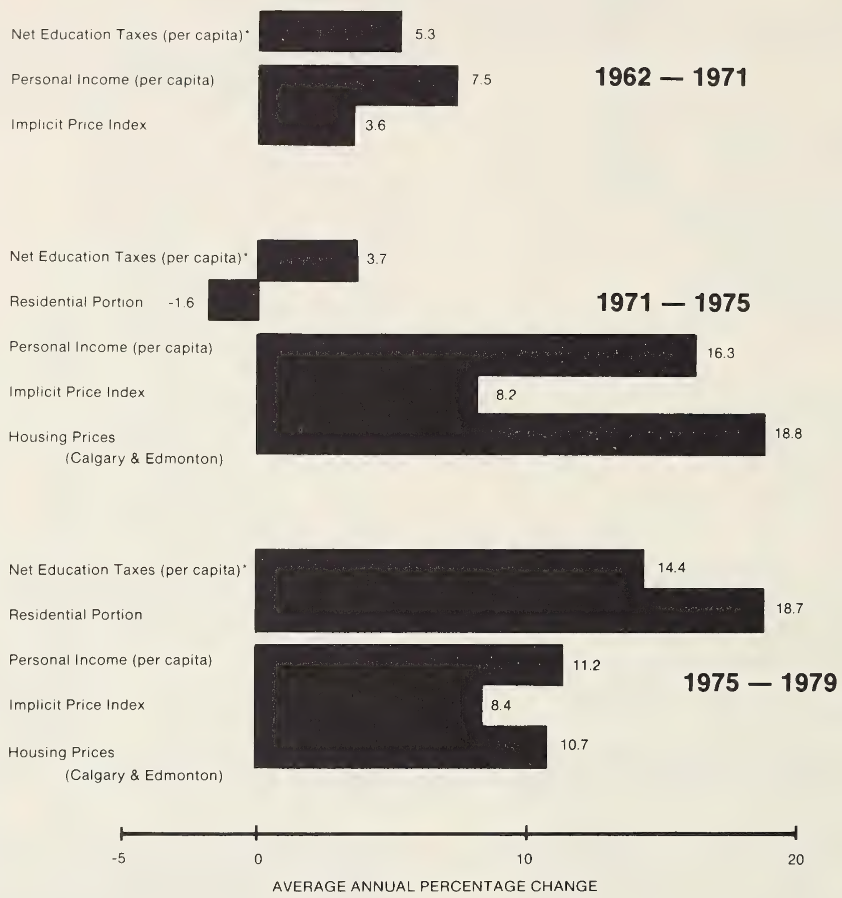
2. RELATIONSHIP WITH MUNICIPAL TAXES

Until the passage of the Alberta Property Tax Reduction Act in 1973, and the subsequent removal of residential property and farmland from the SFPF levy, school taxes amounted to approximately one-half of total local property taxes. As shown in Table IV.4, school taxes ranged from 47% to 58% of the total during 1962-72. The municipal share includes special assessments, such as frontage taxes, but does not include mobile home fees or grants in lieu of taxes. Periodic changes in educational financing procedures lowered the school tax share in a number of years. The reductions in 1966, 1970 and 1971 are attributed to the passage of the Homeowners' Tax Discount Act, the restructuring of SFPF to a classroom unit basis, accompanied by a local requisition roll back, and an increase in the homeowners' tax rebate, respectively.

In 1973, the school tax share dropped substantially. Although residential property and farmland were not removed from SFPF levy until 1974, property tax rebates were increased substantially in 1973, to $57 million, and this served to offset the levy. Since 1973, the educational share of local taxes has remained relatively constant at close to 40%. The increase to almost 46% in 1979 is associated with the very small

FIGURE IV.5

Growth Rates of Selected Indices, 1962-79



*Supplementary requisitions plus the local contribution to the SFPF less property tax rebates.

Prepared for the Department of Education
Peter C. Nichols & Associates Ltd.

December 1980

TABLE IV.4
Municipal and Education Property Taxes in
Alberta, 1962 to 1979.

	Property Taxes — ($ millions) —			Total per Capita ($)	Education Taxes as % of Total
	Municipal[1]	Education[2]	Total		
962	68	65	133	97	48.9
963	69	71	140	100	50.7
964	67	76	143	100	53.1
965	78	81	159	110	50.9
966	82	74	156	107	47.4
967	84	87	171	115	50.9
968	89	106	195	128	54.4
969	87	122	209	134	58.4
970	105	120	225	141	53.3
971	126	124	250	154	49.6
972	141	134	275	166	48.7
973	154	112	266	157	42.1
974	184	135	319	185	42.3
975	237	156	393	221	39.7
976	277	183	460	250	39.8
977	304	225	529	278	42.5
978	357	249	606	309	41.1
979	362	304	666	330	45.6

Includes hospital, senior citizen lodge and other requisitions.
Net of property tax reduction grants.

ource: Alberta Economic Accounts, 1979 and various source documents from the Departments of Education and Municipal Affairs.

increase (less than 2%) in municipal taxes due to the one-time Municipal Debt Reduction Program.

In terms of residential property taxes, the proportion of school taxes would be lower than that indicated in Table IV.4 for 1974 and subsequent years because only a portion of the education taxes, i.e., supplementary requisitions, but all of the municipal taxes, are levied against residential property. Ignoring the effect of different municipal mill rates for residential and non-residential property, school taxes in 1979 would have been approximately 37% of total residential property taxes, 39% if tax rebates are not considered.

3. PROPERTY TAX BURDEN

A common means of estimating the burden of property taxes is to determine the effective mill rate of a typical property. This rate is calculated by dividing the property tax by the property value expressed in thousands of dollars. Table IV.5 shows the estimated effective mill rates for educational and other property taxes on residential properties in several cities in Alberta and elsewhere in Canada. Much of the data were collected by questionnaire surveys conducted by the City of Edmonton in 1977 and 1979. Although the typical houses used for the two years are different, the effective mill rates can be compared.

TABLE IV.5

Comparison of Relative Residential Tax Levels, Selected Canadian Centers, 1977 and 1979.

City	1977[1]					1979[2]				
	School Levy ($)	School Tax Rebates[3] ($)	Net School Levy ($)	School Taxes	Total Property Taxes	School Levy ($)	School Tax Rebates[3] ($)	Net School Levy ($)	School Taxes	Total Property Taxes
				(effective mill rate)[4]					(effective mill rate)[4]	
Edmonton	243	0	243	3.9	8.1	309	0	309	3.4	7.4
Calgary	199	0	199	3.3	8.0	297	0	297	3.4	7.3
Lethbridge	166	0	166	3.0	7.3	292	0	292	4.7	9.7
Medicine Hat	166	0	166	3.7	6.9	267	0	267	4.1	6.5
St. Albert	183	0	183	3.2	11.8	283	0	283	3.2	9.8
Vancouver	427	280	147	2.5	10.8	505	380	125	1.5	7.6
Saskatoon	386	200	186	4.1	11.3	468	230	238	3.4	8.9
Regina	331	200	131	2.9	12.5	510	230	280	4.1	13.8
Winnipeg	506	169	337	6.7	15.0	666	169	497	7.4	15.9
Ottawa	506	140	366	6.7	16.2	530	43	487	7.3	14.5

[1] Standard property was a 1000 square foot bungalow on a 6000 square foot lot.

[2] Standard property was a 1200 square foot bungalow with a single car garage on a 6000 square foot lot.

[3] Senior citizen rebates are not included. As suggested by provincial officials, 50% of the Ontario rebates and 75% of the Manitoba rebates are applied to school taxes; 100% of the other rebates are applied. For Alberta, the school levy figures are net of the exemption of the SFPF levy and hence, no rebates are included.

[4] Tax levy divided by estimated market value of the property (expressed in $000).

Source: Property tax surveys conducted by the Corporate Policy Planning Office of the City of Edmonton and modifications by Peter C. Nichols & Associates Ltd.

In order to provide a meaningful comparison between jurisdictions, the appropriate property tax rebates were applied. The application of these rebates to school taxes is based on proportions provided by the respective provincial education departments. The effective mill rates of the net school taxes for the cities in Alberta are in the middle of the ranges shown in Table IV.5. They are more than for Vancouver, approximately the same as for Saskatoon and Regina, and less than for Winnipeg and Ottawa. When the effective mill rates of total property taxes are compared, the rates for the Alberta municipalities, amounting to less than 1% of property values, are among the lowest of those surveyed. Caution should be exercised when using these inter-jurisdictional comparisons since differences in activities performed and service levels are not taken into account.

It was shown earlier in Table IV.3 and Figure IV.5 that, except for the recent few years, educational taxes on a per capita basis have risen at a slower rate than have house prices and personal incomes. Because of the declining family size, school taxes per household have risen at an even slower rate. The present school tax burden is less than what it was during earlier years, although it is currently increasing at a disproportionately high rate.

B. **Sources of Education Taxes**

Education taxes for all Alberta municipalities and for the urban municipalities alone are given in Table IV.6 for the years 1971-78. The urban share of total school taxes, net of tax rebates, has remained relatively stable at approximately 75% since 1975. Prior to that time, the urban share had been approximately 70% but dropped to 65% in 1974. The increase from 70% during the early 1970s to 75% at present reflects a general increase in the urban share of equalized assessments. By comparison, the urban share of population is approximately 79%. The sudden drop and subsequent increase in the urban share of educational taxes in 1974 and 1975 is attributed to the lag in the removal of farmland from the SFPF levy until 1975, while other residential property was removed a year earlier.

As shown in Table IV.6, prior to the passage of the Alberta Property Tax Reduction Act, the residential share of school taxes was approximately 60% for urban municipalities and 43% for all municipalities combined. This compares to the subsequent figures of approximately 46% and 36% respectively. The figures for 1979 and 1980 should not be substantially different. Therefore, the residential share of school taxes has remained relatively constant since 1975.

The allocation of live, i.e., taxable, assessment to the categories of non-farmland, farmland, buildings and improvements, machinery and equipment, and for rural areas, electric power and pipeline, can provide some indication of shifts in the apportionment of school taxes. However, as discussed in Section III, provincial totals of live assessment must be used with caution due to a bias toward those municipalities that have recently conducted general assessments. To demonstrate the changes in the composition of assessment bases, relevant data for Alberta cities and counties for selected years are shown in Table IV.7. These two categories should be representative of urban and rural jurisdictions respectively.

For cities, the non-farmland proportion increased substantially from 1971 to 1975 as new general assessments reflected increased land values but not higher replacement costs of buildings and improvements. Since that time, municipalities conducting general assessments have been operating under new procedures that adjust the values of both categories. Consequently the proportions have remained relatively constant since 1975.

For counties, the farmland share of live assessments has steadily decreased since 1971, reflecting the increased development in rural areas as well as the maintenance of constant farmland values while inflating other property values during a general assessment. The decrease in the farmland share would be even greater in respect to equalized assessments, since values of properties other than farmland are adjusted each year. Therefore, not only do farmland owners pay a smaller share of school tax within a particular jurisdiction, but also, ignoring any changes in other assessment categories, municipalities with relatively larger amounts of farmland contribute a smaller share of supplementary requisitions to rural school boards than in the past.

Projections of assessment compositions, reflecting changes in assessment procedures, are discussed in Section V.

TABLE IV.6

Municipal Distribution and Composition of Education Taxes, 1971 to 1978.

	1971	1972	1973	1974	1975	1976	1977	1978
URBAN MUNICIPALITIES								
Total Education Tax[1] ($000)	85,637	94,205	75,957	86,475	115,511	135,320	165,020	185,790
Residential portion ($000)	51,308	56,306	35,767	33,361	51,441	62,941	78,203	84,678
Residential percentage	59.9%	59.7%	47.1%	38.6%	44.5%	46.5%	47.4%	45.6%
Total Education Tax ($ per capita)	70	76	60	67	85	97	113	123
Residential portion ($ per capita)	42	45	28	26	38	45	54	56
ALL MUNICIPALITIES								
Total Education Tax[1] ($000)	121,453	132,066	110,302	132,632	153,957	181,274	220,403	245,590
Residential portion ($000)	51,634	56,368	35,952	34,725	53,726	65,373	82,428	86,210
Residential percentage	42.5%	42.7%	32.6%	26.2%	34.9%	36.1%	37.4%	35.1%
Total Education Tax ($ per capita)	76	82	67	79	87	101	119	128
Residential portion ($ per capita)	32	35	22	21	30	36	44	45
URBAN EDUCATION TAXES AS A PERCENTAGE OF MUNICIPAL TOTAL	70.5%	71.3%	68.9%	65.2%	75.0%	74.6%	74.9%	75.7%

[1] Net of property tax rebates. Includes SFPF levies.

Source: Prepared by Peter C. Nichols & Associates Ltd. from tabulations from the Departments of Education and Municipal Affairs.

TABLE IV.7

Composition of Taxable Assessments, Alberta Cities and Counties, 1971 to 1979.

	1971	1975	1978	1979
		— (%) —		
CITIES				
Non-farmland	30.6	48.6	46.9	48.9
Farmland	.0	.1	.0	.0
Buildings and Improvements	68.1	50.5	52.2	51.2
Machinery and Equipment[1]	1.3	.8	.9	.9
TOTAL	100.0	100.0	100.0	100.0
COUNTIES				
Non-farmland	2.3	4.3	5.4	13.8
Farmland	54.3	42.6	37.1	33.0
Buildings and Improvements	14.4	21.6	24.1	24.9
Machinery and Equipment	10.8	11.8	12.6	10.2
Electric Power and Pipeline	18.2	19.7	20.8	18.1
TOTAL	100.0	100.0	100.0	100.0

Includes electric power and pipeline.

Source: Assessment Equalization Board.

C. Tax Control Mechanisms

Prior to 1973, school boards were subject to a dollars per pupil limit on the annual increase in supplementary requisitions. (In 1970, this limit was negative because of increased provincial funding; supplementary requisitions had to decrease by at least $45 per pupil.) If this limit were to be exceeded, a plebiscite had to be held unless otherwise directed by an Order-in-Council. In 1973, the limit was changed to a 7½% annual increase in the mill rate calculated on equalized assessments. The rationale behind this move was to enable school boards to take advantage of increases in their assessment base. An additional change was made so that rather than an increase above the limit requiring a plebiscite, it would simply be subject to a petition for a plebiscite. The percentage limit was increased to 10% in 1976, and subsequently has been reduced to 8%.

Although the current procedure has been in effect for over seven years, it provides little effective control. With equalized assessments rising by approximately 18% per year from 1976-79 and an increase in excess of 35% for 1980, the "control" mechanism has permitted increases of as much as 45% in one year. With such allowable increases, it is not surprising that the "petition for plebiscite" provision has not been necessary. It is further suggested that in addition to providing an ineffective control, the current procedure could actually be encouraging large increases in supplementary requisitions by providing tacit approval for increases up to the limit. The ineffectiveness of this procedure is discussed in the following section, which includes projections of assessments and school taxes.

V. PROJECTIONS TO 1985

A. Education Revenues and Expenditures

Three sets of projections of provincial school board revenues and expenditures have been prepared for 1980-85, based on different sets of assumptions. The first set of projections has been derived by extrapolating total expenditures and revenues for each category, except supplementary requisitions, on the basis of the observed 1975-79 average annual growth rate. Supplementary requisitions are then calculated as the difference between the estimated expenditures and revenues. Expenditures were projected using the growth rate in per student expenditures; because the number of students for 1981-85 is expected to remain relatively constant, this rate is applied to the total current expenditures. The growth rates assumed are shown in Table IV.8 and the projections are given in Table IV.9. Because expenditures are projected to increase at a faster rate than government grants, supplementary requisitions are shown to increase at almost 17% per year and to comprise an increasing share of revenues. Requisitions are projected to increase to 31% of the total, from 25%, while the provincial share not including tax rebates, is shown to decline to 52% from 60%. As well, under this scenario, the SFPF will contribute approximately one-half of school board revenues.

The second set of projections is based on 1980 and 1981 revenue and expenditure estimates prepared by the Finance, Statistics and Legislation Branch of Alberta Education. The projections for 1982-85 are derived by extrapolating the 1981 figures by the 1980-81 growth rates, given in Table IV.8, for each category, except supplementary requisitions. Requisitions are calculated as a residual in the same manner as for the first set of projections. As shown in Table IV.9, this second set of projections yields much higher levels of expenditures and somewhat higher supplementary requisitions than the first set. The provincial share of the SFPF is lower than at present but this is compensated for by other much larger provincial grants. With this projection, SFPF will contribute approximately one-half of total revenues.

A third set of projections has been generated by using the same estimated expenditures as immediately above, but distributing the revenues in the same proportions as prevailed in 1980. The result is estimated 1985 supplementary requisitions which are approximately the same as for the first set of projections.

The supplementary requisitions estimated under each of the three sets of projections are depicted in Figure IV.6. The estimates represent average annual increases ranging between 17% and 19%. These are approximately equivalent to 13% to 16% annual increases in per capita terms, based on the medium population projections of the Alberta Bureau of Statistics. The growth rates are higher than most forecasts of price and income increases. Hence, without any major changes in financing programs, the burden of school taxes will likely increase. The impact on mill

TABLE IV.8

Assumed Growth Rates in Educational Revenues and Expenditures, Alberta, 1980 to 1985.

	PROJECTION I[1]	**PROJECTION II**[2]
	— average annual % increase —	
Total Expenditures	12.3%	16.9%
Revenues		
Local Contribution: SFPF	14.4%	16.0%
Provincial Contribution: SFPF	8.0%	13.0%
Other Provincial Grants	14.4%	26.9%
Other Revenue	18.7%	20.0%

[1] Based on actual 1975 to 1979 growth rates, except in the case of other provincial grants which are based on the 1976 to 1979 rate. The rate for total expenditures is the average increase in per pupil expenditures.

[2] Based on the 1980 to 1981 increases estimated by the Finance, Statistics and Legislation Branch of the Department of Education.

TABLE IV.9

Educational Revenues and Expenditures in Alberta, 1979, 1980, 1985.

	1979		1980		Projections for 1985[1]					
	Actual ($ millions)	% of Total	Estimates ($ millions)	% of Total	I ($ millions)	% of Total	II ($ millions)	% of Total	III ($ millions)	% of Total
Total Expenditures	959	100.0	1,094	100.0	1,921	100.0	2,388	100.0	2,388	100.0
Revenues										
Local Contribution: SFPF	91	9.5	103	9.4	204	10.6	217	9.1	225	9.4
Provincial Contribution: SFPF	501	52.2	545	49.8	795	41.4	1,004	42.0	1,190	49.8
Other Provincial Grants	87	9.1	110	10.1	195	10.1	361	15.1	240	10.1
Other Revenues	47	4.9	57	5.2	132	6.9	141	5.9	124	5.2
Supplementary Requisitions	233	24.3	279	25.5	595	31.0	665	27.8	609	25.5
Total Revenues	959	100.0	1,094	100.0	1,921	100.0	2,388	100.0	2,388	100.0

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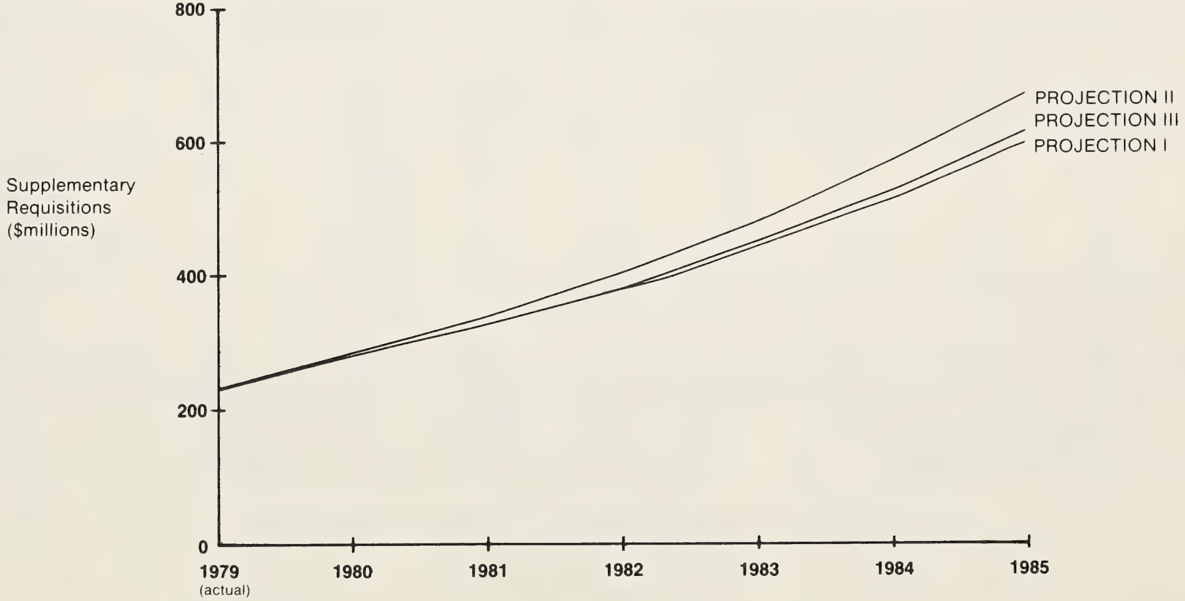
[1] PROJECTION I: Extrapolated from 1979 figures on the basis of 1975 to 1979 average annual growth rate. Supplementary requisitions are residual between total expenditures and the sum of other revenues.

II: Extrapolated Department of Education 1981 estimates on basis of indicated 1980 to 1981 growth rate. Supplementary requisitions estimated as for I.

III: Total expenditures extrapolated as for II; revenue categories at same percentage as 1980 estimates.

FIGURE IV.6

Projections of Supplementary Requisitions, 1980-85



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rates of these higher education taxes is discussed in the following sub-section.

B. **Assessments**

1. INTRODUCTION

Accurate projections of live or taxable assessments would provide the best insight into the composition of future education tax bases, since school taxes are levied on the live assessment base. However, the difficulty of producing accurate projections of provincial taxable assessments is compounded because municipalities have different and uncertain dates in respect of new general assessments. Hence, the procedures used have been to project equalized assessments. These are expected to provide an indication of the changes in live assessments during the next five years since changes in equalization procedures usually reflect similar modifications in actual assessment practices. In addition, the availability of equalized assessment projections will permit the evaluation of existing control mechanisms of supplementary requisitions.

2. EQUALIZED ASSESSMENTS

Equalized assessments have been projected separately for each property category, i.e., land, buildings and improvements, for both urban and rural municipalities in the province, using factors corresponding to the three components of growth: property value increases, real growth, and structural, i.e., assessment procedure, changes.

Market value increases for non-farmland have been estimated at 20% to 25% per year while the economic value of farmland has been held constant. Replacement costs of buildings and improvements, and of machinery and equipment, are based on actual increases during the past two years for 1981 and 1982, since equalized assessment values are lagged two years, and an estimated 12% annual increase for subsequent years. Real growth is assumed to be 6% per year for all categories except farmland; in addition, machinery and equipment is depreciated 5% each year. There are no structural changes planned for either non-farmland or buildings and improvements; it should be noted however that 1981 will be the first year in which replacement cost increases will be included for all improvement categories. Since the assessable proportion for machinery and equipment was doubled for 1980 live assessments, the Assessment Equalization Board is considering following the same procedure for equalized assessments. It has been assumed that this procedure will be adopted but that it will not fully take effect until 1985, at which time all municipalities will have conducted a general assessment under the new procedure.

Rural electric power and pipeline assessments will be increased because of a reduction of the in-place depreciation from 50% to 25%. Farmland assessments will be increased from 13.5% to 20% of economic value by 1982. Other changes in assessment procedures, such as the assessment of farm residences with a 1980 replacement cost above $50,000 and the tenfold increase in railway right-of-way assessments, have not been considered significant and are not included in the projections.

Table IV.10 outlines the changes in assessment values and composition expected to occur from 1980-85. The urban share of total assessments is expected to increase to about 78% from the current proportion of 75%. This observation is based on the assumption of the same rate (6% per year) of real growth in both urban and rural areas. Should the real growth be higher in the urban areas, the urban share would increase further.

One of the more significant changes is the continued decline in the proportion of farmland assessments. Although the equalization of farmland will be increased to 20% of economic value from the current figure of 13.5%, and 10% of years prior to 1980, this is not sufficient to offset the increases in the market values of other land and in replacement costs of improvements. The relative proportions of machinery and equipment and rural electric power and pipeline assessments, as well as non-farmland, are projected to increase. Consequently, the relative importance of buildings and improvements, particularly in urban jurisdictions, is expected to decrease.

The provincial total equalized assessments are projected to increase at an average annual rate of 23%-25%, less than the 37% increase experienced in 1980 but higher than the increases between 1975-79, which were approximately 18% per year. The major reason for this higher rate is the indexing of the assessed values of all improvement categories to current replacement costs. (With the increases projected,

TABLE IV.10
Projected Growth Rates and Composition of Equalized Assessments,
Alberta Urban and Rural Municipalities, 1980 to 1985.

	Average Annual Increase 1980-1985[1,2]	Composition	
		1980	1985[2]
URBAN MUNICIPALITIES			
Non-farmland	27-32%	47%	55-60%
Buildings and Improvements	19%	52%	44-39%
Machinery and Equipment	17%	1%	1%
Total	23-26%	100%	100%
Urban as a Percentage of Provincial Total	—	76%	78-79%
RURAL MUNICIPALITIES			
Non-farmland	27-32%	11%	14-16%
Farmland	8%	30%	17-16%
Buildings and Improvements	19%	24%	22-21%
Machinery and Equipment	30%	15%	21%
Electric Power and Pipeline	30%	20%	27%
Total	22-23%	100%	100%
Increase in Provincial Total	23-25%	—	—
Rural as a Percentage of Provincial Total	—	24%	22-21%

[1] In dollars of assessment.

[2] The range of figures is due to using a range of average annual increases in non-farmland values of 20% to 25%.

mill rates on equalized assessments for both supplementary requisitions and the SFPF levy could decrease and still provide more than enough funds to offset the effects of inflation.) Clearly, the current 8% limit on increases in mill rates for supplementary requisitions, which would allow annual dollar increases exceeding 30% using the above projections, will provide little control on educational levies.

3. LIVE ASSESSMENTS

Live assessments for 1981 using the new general assessment procedures have been estimated by category for Edmonton, Calgary and the County of Ponoka. Edmonton and Calgary were chosen because together they represent approximately one-half of the equalized assessments in the province. Edmonton conducted a general assessment using the new procedures in 1979. Calgary's most recent general assessment occurred in 1975 using the old procedures. Therefore, the estimates for these two cities will provide an indication of the changes for those urban municipalities whose assessment is based on the new and old procedures.

The County of Ponoka was selected as a typical rural municipality; its equalized assessment per capita is in the middle of the provincial range, and, as with almost all rural jurisdictions, its assessment is based on the old procedures.

The 1981 estimates are based on the actual 1979 assessment figures and do not take into account any real growth. For Edmonton, a new general assessment will not be conducted before 1981. Therefore, the existing values are used except that the machinery and equipment assessment is doubled to reflect recent changes, then depreciated by 5% per year. As well, farmland values are multiplied by a factor of six. For Calgary and the County of Ponoka, a general assessment using the new procedures is assumed to be conducted in 1981. Existing assessed values are converted to a 1980 level using cost and value conversion factors obtained from the Assessment Equalization Board, and then are assessed at the appropriate rates. In addition, machinery and equipment is depreciated by 5% each year, from 1979-81.

The 1981 estimates for Edmonton are given in Table IV.11. As would be expected, there is little change in the proportions of each category except for the increase in machinery and equipment. The sixfold increase in farmland assessment is insignificant to the total.

The 1981 estimated taxable assessments for Calgary under a new general assessment are given in Table IV.12. Land values will account for a significantly larger share of the assessment base, while the portion related to improvements will be correspondingly reduced. Although the new assessment base will be almost five times larger, the residential proportion will remain relatively constant.

Table IV.13 displays the estimated 1981 assessments for the County of Ponoka. The non-farmland component is expected to increase substantially while the proportion attributed to farmland will decline. The share of the assessment base related to buildings and improvements will decrease somewhat while that of machinery and equipment will increase. The proportions of electric power and pipeline and railway rights-of-way are expected to remain about the same.

In summary, the composition of the live, or taxable, asessment base will change substantially for those municipalities conducting a new general assessment. For those municipalities continuing to use an existing general assessment, little change will occur. The changes in the composition of equalized assessments projected for 1985 (Table IV.10) provide a good indication of the expected changes in the live assessment base by that year since, by then, all municipalities will have completed a general assessment using the new procedures.

TABLE IV.11

Projected Live Assessments, Edmonton, 1981.

	1979 ACTUAL ($ millions)	%	1981 ESTIMATE[1] ($ millions)	%
Land				
Residential	2,735	33.1	2,735	33.0
Non-residential	1,565	19.0	1,565	18.9
Buildings and Improvements				
Residential	2,643	32.0	2,643	31.8
Non-residential	1,253	15.2	1,253	15.1
Machinery and Equipment	56	.7	102	1.2
Farmland	0[2]	.0	2	.0
Total	8,253	100.0	8,300	100.0
Residential Percentage of Total		65.1%		64.8%

[1] Does not take into account real growth.

[2] Approximately $0.4 million.

TABLE IV.12

Projected Live Assessments, Calgary, 1981.

	1979 ACTUAL ($ millions)	%	1981 ESTIMATE[1] ($ millions)	%
Land				
Residential	585	27.5	3,805	37.8
Non-residential	317	14.9	2,061	20.5
Buildings and Improvements				
Residential	815	38.3	2,763	27.5
Non-residential	393	18.5	1,333	13.3
Machinery and Equipment	17	.8	95	.9
Farmland	1	.0	5	.0
Total	2,128	100.0	10,062	100.0
Residential Percentage of Total		65.8%		65.3%

[1] Does not take into account real growth. Assumes a general assessment conducted in 1981.

TABLE IV.13

Projected Live Assessments, County of Ponoka, 1981.

	1979 ACTUAL ($ thousands)	%	1981 ESTIMATE[1] ($ thousands)	%
Land	303	1.8	8,563	7.7
Farmland	9,560	57.8	57,360	51.2
Buildings and Improvements	1,478	8.9	7,237	6.5
Maintenance and Equipment	2,059	12.5	17,042	15.2
Electric Power and Pipeline	3,084	18.7	21,213	19.0
Railway Right-of-Way	48	.3	480	.4
Total	16,532	100.0	111,895	100.0

[1] Does not take into account real growth. Assumes a general assessment conducted in 1981.

TABLE IV.14

Composition of Local School Board Revenues for Selected Provinces.[1]

	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
Net Local Property Taxation (after rebates)	40.0%[2]	18.8%[3]	25.0%[4]	31.6%[4]	43.2%[4]
of which Local Discretion[5]	40.0%	15.0%[6]	25.0%	22.1%	5.1%[6]
Miscellaneous Revenue	4.0%	1.6%	8.6%	4.4%	—[7]
Provincial Grants	56.0%	79.6%	66.4%	64.0%	56.8%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%
Gross Local Property Taxation (ignoring rebates)	46.0%	41.0%	38.4%	33.7%	56.6%

[1] Year of data is 1980 for British Columbia and Ontario, 1979 for Alberta and Manitoba, and 1978 for Saskatchewan.

[2] 50% of property tax rebates applied to education taxes and deducted from local share.

[3] 75% of property tax rebates applied to education taxes and deducted from local share.

[4] 100% of property tax rebates applied to education taxes and deducted from local share.

[5] Local discretion refers to property taxes (less rebates) derived through a locally established levy.

[6] Rebate amounts are applied pro rata between locally and provincially established taxes.

[7] Miscellaneous revenues, totalling less than 5%, are included in the local and provincial categories.

VI. INTERPROVINCIAL COMPARISONS

School board revenues have been analyzed for Ontario and the four western provinces to provide a comparison of the relative proportions of provincial and local funding. Revenue figures obtained from the respective provincial education departments have been adjusted to take into account various property tax rebate schemes. The rebate programs in British Columbia, Alberta and Saskatchewan were established for reducing education taxes, and therefore the entire amounts paid under those programs have been deducted from the local share of educational taxes and included in the provincial funding. For Manitoba and Ontario, the proportions of the rebate commonly attributed to education taxes by the provincial departments have been used; these proportions are 75% and 50%, respectively.

Table IV.14 provides a breakdown of the total school board revenues of each province. A distinction is made between the total revenues collected through local property taxation and the amount actually established by local school jurisdictions. The difference between these two amounts represents amounts collected through a uniform provincial levy. The percentage figures for gross local taxation, before accounting for rebates, are given as well.

If rebates are ignored, the figures in Table IV.14 indicate that local property taxes contribute a smaller share of school board revenues in Alberta than in the other four provinces shown. However, if various tax rebate schemes are considered, the findings change and it would appear that the share of revenues paid by local taxpayers in Alberta is in the middle of the range for the various provinces.

VII. SUMMARY

This report has provided an overview of the education taxation process in Alberta and an analysis of past and projected changes in the amount and composition of school board revenues. While local education taxes have risen substantially during the past 30 years, their proportion of total revenues declined until 1975; since then, their share has increased somewhat. SFPF initially contributed 90% of the required revenues of school boards and was funded through local property taxes and provincial general revenues in approximately equal proportions. It currently provides approximately 60% of required revenues, with less than one-sixth being funded through local property taxes; these taxes are now levied on commercial and industrial property only.

Prior to 1975, school taxes increased at a lower rate than personal incomes, housing and other prices, and other forms of taxation. During the past five years, the rate of increase of school taxes has been higher than for these other indices. However, the present residential school tax burden, amounting to less than 0.5% of urban residential market values, is not high when compared to an observed range of 0.2% to 0.7% for a sample of other jurisdictions in Canada.

Projections based on recent experience and expected trends indicate that property taxes will provide an increasing proportion of school board revenues in the next few years. Consequently, taxes, and in particular supplementary requisitions, are projected to increase at a faster rate than incomes and prices. The share of educational taxes contributed by farm properties will decline relative to residential, commercial and industrial properties. Irrespective of relative urban and rural growth rates, the urban share of educational taxes will increase due to changes in assessment procedures.

CHAPTER V

DEFINING THE LOCAL CONTRIBUTION TO LOCAL SCHOOL EXPENDITURES — A PRELIMINARY REPORT

W.L. Hill and Bruce Paige

Following is a brief summary of the project. There is no general written report; instead, the project generated a number of computer printouts.

I. INTRODUCTION

In order to make judgments about the sufficiency of provincial funds in support of local school board spending, it is important to have some measure which can be used to compute readily the "local contribution" for individual school systems, for school system types, province-wide, and on a year-to-year basis.

School board revenue has two primary sources —provincial grants and local taxation on property collected by municipalities to cover supplementary requisitions.

The Government of Alberta levies a standard property tax on all non-residential property as a source of revenue for SFPF. "Local contribution" can be defined to either include or exclude this amount.

II. STUDY OBJECTIVES

The study was designed to:

- develop a standard definition of "local contribution";
- devise a quantitative measure of the "local contribution";
- trace changes in the values of the measure, province-wide and year-to-year.

III. APPROACH

Two definitions of "local contribution" were employed: Definition "A", restricted to the local supplementary requisition adjusted for operating surplus; Definition "B" including as well a *pro rata* portion of the proceeds from the SFPF levy.

This latter definition was included because of periodic arguments from the field that the SFPF levy proceeds, since they flow from local taxpayers (in the sense of "local taxable assessment") ought to be most appropriately considered as part of the local financial support to local schooling services. Whether or not this view is the "correct" one, this second definition has been included for the sake of interest.

Values of the financial independence ratios were estimated using revenues data reported in the Department's *Annual Report Statistical Supplement* for the years 1969-1979.

Two quantitative (ratio) measures were devised to capture these two definitions: Financial Independence Ratios (FIR) A and B, as follows:

$$\text{FIR "A"} = \frac{(\text{Supp} - \text{OpSurp})}{(\text{SFPF} + \text{SchlG} + \text{OthG} + 1)}$$

$$\text{FIR "B"} = \frac{(\text{Supp} + \text{Levy}) - \text{OpSurp}}{(\text{SFPF} + \text{SchlG} + \text{OthG} + 1)}$$

Where:
Supp = local supplementary requisition
OpSurp = school system operating surplus
SFPF = school system SFPF Grants receipts
SchlG = school system School Grants receipts
OthG = other provincial Grants receipts
1 = included only to ensure $(\text{SFPF} + \text{SchlG} + \text{OthG} + 1) \neq 0$

Two statistical measures were employed to gauge any shift in relative local contributions (FIRs) between and among school jurisdiction types over time: the Coefficient of Variation and the Gini Coefficient.

IV. FINDINGS

A. If the local share is described exclusive of the (local) SFPF levy (Definition "A" and FIR "A") (see Table V.1):

- there has been an increase in local contributions

- overall, more school systems experienced higher relative costs shares in 1979 than in 1969;
- the greatest increases occurred in public school districts (2-1/2 times) and the least in school divisions (1-3/4 times).

B. If the local share includes the SFPF levy (Definition "B" and FIR "B") (see Table V.2):

- there has been a slight decrease, from a high of 44% in 1969 to a low of 37% in 1979;
- the largest decrease has been experienced by separate systems (from 37% to 24%) and least by public districts (from 49% to 44%) although all have fluctuated to even lower points at some time between 1969 and 1979.

V. CONCLUSIONS

A. Depending on the definition employed, the province can be described as contributing a greater or smaller share of education costs since 1969.

B. According to FIR "B", the supplementary requisition has become a much more important source of revenue for local school systems in relation to provincial grants (as borne out by FIR "A"), and the SFPF levy has become a less important source of revenue relative to provincial grants. The combined effect is the apparent reduction in the relative importance of the "local contribution" as measured by FIR "B".

C. By including the prorated proceeds from the SFPF levy, FIR "B" "masks" the relative rates of change of the local supplementary requisition and the provincial grants, which yields the apparent contradictory results above, i.e., FIR "A" increases while FIR "B" decreases.

D. Because it is less ambiguous — it yields results which support popular opinion: everyone knows supplementary requisitions have increased markedly, which must mean the provincial share has declined — definition "A" of relative local contribution, measured by FIR "A", should be employed as the measure of local cost share.

E. The data do not contain criteria which would enable a judgment to be reached on what the "proper" share should be.

TABLE V.1

Financial Independence Ratio (FIR) A, Alberta School Boards, 1969-79

	Overall	Divisions	Counties	Public	Separate	Rural	Urban
1969	.0975	.1163	.1269	.1088	.0801	.0953	.1147
1970	.1288	.1467	.1505	.1309	.1256	.1286	.1306
1971	.0931	.1098	.1053	.1115	.0647	.0941	.0854
1972	.0993	.1225	.1128	.1081	.0858	.0999	.0947
1973	.1024	.1195	.1137	.1300	.0600	.1036	.0933
1974	.1379	.1523	.1430	.1549	.0865	.1275	.1311
1975	.1380	.1520	.1596	.1724	.0851	.1375	.1420
1976	.1829	.1858	.1789	.1973	.1607	.1821	.1892
1977	.1811	.1973	.1950	.2205	.1206	.1805	.1861
1978	.2152	.2216	.2091	.2417	.1743	.2110	.2477
1979	.2382	.2113	.2469	.2748	.1819	.2331	.2769

TABLE V.2

Financial Independence Ratio (FIR) B, Alberta School Boards, 1969-79

	Overall	Divisions	Counties	Public	Separate	Rural	Urban
1969	.4419	.4073	.4540	.4865	.3733	.4236	.5826
1970	.4164	.4408	.4670	.4816	.3160	.4182	.4023
1971	.4190	.4265	.4110	.4805	.3245	.4289	.3436
1972	.4280	.3918	.4162	.4655	.3703	.4370	.3583
1973	.3846	.4082	.3833	.4531	.2791	.3871	.3650
1974	.4328	.4104	.4066	.4873	.3489	.4309	.4477
1975	.2750	.3158	.2400	.3268	.1953	.2767	.2622
1976	.3053	.2789	.2646	.3226	.2786	.3111	.2610
1977	.2777	.2911	.2850	.3252	.2046	.2723	.3194
1978	.3357	.3431	.2892	.4165	.2115	.3360	.3340
1979	.3676	.3109	.3380	.4482	.2436	.3636	.3980

CHAPTER VI

FISCAL EQUALIZATION AMONG ALBERTA SCHOOL SYSTEMS

W.L. Hill and H. King

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I. INTRODUCTION

For over 50 years, the school finance literature in North America has cited the concept of "equalization" as a necessary and desirable criterion against which the soundness of any state or provincial schools support program should be judged. Cubberly in 1905 and Updegraff in 1922 introduced the equalization principle into the school finance vocabulary, and in the 1920s, George Strayer and Robert Haig developed the minimum foundation program, which was designed to eliminate the inequalities in fiscal capacity or wealth among school districts.

These early approaches to school financing were all dedicated to the central idea that equal (dollar-equivalent) resources imply "equal" school services (and that this equality of services, from child to child, and across children, would function as a reasonable first approximation to equality of educational opportunity).

In Alberta, the School Foundation Program initiated in 1961 incorporated a unique (to North America) equalization feature, again intended to mitigate school district-to-school district variations in ability to raise revenues (or the abverse, to spend monies): the dollars proceeds from a provincially-mandated, standard tax levy (SFPF levy), applied province-wide, were pooled and redistributed as flat School Foundation Program grants. This method contrasted with traditional approaches to minimum foundation program funding where proceeds from the levy set by the central authority were raised and applied locally. School systems which had contributed a lesser amount to the SFPF pool by virtue of lower wealth, (i.e., lower equalized assessment), received the same unit grants as higher wealth school systems. To that extent, the 1961 foundation program "equalized" school system revenues to account for variations in local wealth.

The public subscription to equalization as a necessary component of Alberta school finance arrangements continues today. But since the early days of the Alberta School Foundation Program, school finance planners have insisted on qualifying the principle of equalization: equalization of potential revenues or actual revenues, or of spending per pupil, by whatever means, does not of itself ensure an equality of school services in keeping with the educational needs of individual youngsters. The primary focus of any sound schooling support program should be to provide greater financial assistance in meeting the schooling needs of students to those local school systems which are relatively less able to do so themselves. The support program should *equalize* the fiscal capabilities of school systems in aid of *equivalent* educational needs, and should *disequalize* fiscal capacities in aid of *differing* educational needs (equity).

In its report of October 1969, the Minister's Advisory Committee on School Finance enunciated the first principle upon which a provincial finance plan should be based:

"A provincial plan for financing education should have as one of its major objectives the achievement of fiscal equalization." (Minister's Advisory Committee on School Finance, 1969, p.i). The Report goes on, however, that, "While fiscal equalization remains a desirable objective, the Committee is doubtful that its achievement necessarily guarantees educational equalization. In fact, a movement towards the equalization of educational opportunity could result in incidences of fiscal inequality." (p. 51)

MACSFs 1972 and 1975 put the matter this way:

"A provincial plan for distributing educational funds should have as its prime objectives:

a) the equalization of educational opportunity, and

b) fiscal equalization, insofar as it is compatible with equalization of educational opportunity" (MACSF Report, 1975, p. 4).

The 1975 Report then goes on to suggest that fiscal equalization should be regarded as a first approximation to equality of educational opportunity. (p. 4.)

II. STUDY PURPOSE

Judging by the attention paid to it by three MACSFs — 1969, 1972 and 1975 — and in spite of present day qualifications and delimitations associated with it, "fiscal equalization" is of central importance to any discussion concerning the effectiveness of the whole set of statutory and regulatory arrangements which govern the financing of schooling in this province. To this time, however, there apparently have been no published, systematic attempts to measure the presence of fiscal equalization in the Alberta school finance plan.

This study constitutes a preliminary look at fiscal equalization among Alberta school systems over time. A host of popular inequality measures is reviewed, with strengths and weaknesses of each measure enumerated. Several "best" measures are selected and applied to revenue, expenditure and requisition rate data for the period 1971-78. Conclusions are drawn with respect to changes in equality across all school systems, among school systems of particular organizational types, geography and size.

III. A REVIEW OF INEQUALITY MEASURES

There are a considerable number of measures which can be used to test for fiscal equality among Alberta school systems, basically falling into two broad classes: general purpose statistical measures, reflecting central tendency and dispersion; and special purpose measures (or inequality indices), usually derived from or with regard to a social welfare function[1].

A. Statistical Measures

1. RANGES (R) are probably the most widely used statistical measure, defined as the difference between the highest and lowest values of a distribution.[2]

2. RELATIVE MEAN DEVIATION (M) is obtained by dividing the absolute mean deviation by the mean, or mathematically [from Bezeau (1979) and Berne and Steifel (1979b)]:

$$M = \frac{\sum_{i=1}^{n} P_i \,|\, E_i - E \,|}{E_i \;\; P_i}$$

Where E = overall average of E_i

P_i = number of pupils enrolled in board i

E_i = per pupil expenditure of board i

3. VARIANCE (V) is a very common statistical measure — the weighted, squared deviations from the mean. The value of V, and its positive square root, S, the standard deviation, depend on the mean and the unit of measurement.

4. COEFFICENT OF VARIATION (C) is the standard deviation divided by the mean. As we will note further on, this measure meets many of the desirable criteria, and is widely used and easily interpreted. A value of .20 indicates 1/6 of the distribution is 20% or more below the mean and another 1/6 is 20% or more above the mean (Carroll, 1979).

B. SWF-Based Measures

This second class of measures includes both traditional, time-tested inequality indices as well as more recent, special purpose measures. As with the statistical measures noted above, the following SWF-based indices are all univariate, that is, dealing with one variable only.

1. McLOONE'S "PERMISSIBLE VARIANCE" INDEX

This index is curious in that it does not test for equality of a variable (revenues, grants, expenditures, etc.) for all school systems, but only for those systems below the median (the 50th percentile). In short, the top 50% of the distribution is allowed to vary as it might, and is not constrained in any manner. This measure would be most appropriate where the need to provide for "lighthouse" districts — wealthier districts that spend more on pioneering techniques — is widely accepted. The mathematical formula, after Berne and Steifel (1979b), is

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[1] A social welfare function (SWF) is merely a way of introducing social values concerning inequality, a ranking of all possible states of society in order of (society's) preference. In the case at hand, the "states" would be a function of school system revenues, grants, requisitions or expenditures per pupil. And in its simplest form, the SWF unambiguously ranks the various states: if state A is preferred (or more "desirable") to state B, then the SWF has a higher value for A than B, i.e. $W_A = (g_{1A}, g_{2A}, \ldots g_{nA}) > W_B = (g_{1B}, g_{2B}, \ldots g_{nB})$, where W_A and W_B are social welfare states A and B, and g_{iA} is e.g. grants per pupil of school System 1 in State A, and so on.

[2] A variant is the **restricted** ranged, the range from the 95th percentile to the 5th percentile (when divided by the mean this is the **federal range ratio**). More "stable" than the range.

$$\frac{\sum_{i=1}^{j} e_i y_i}{Y_m \sum_{i=1}^{j} e_i}$$

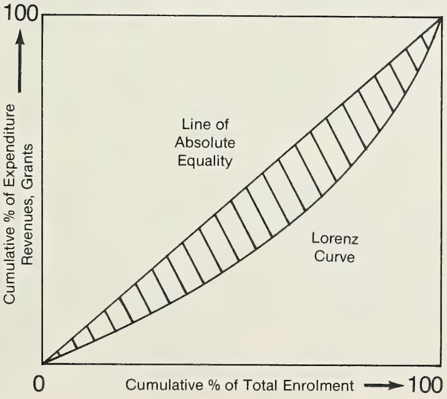
Where: Ym = the median level of per pupil expenditure, and i = 1 through i = j are the districts below Ym. This is bounded between 0 (complete inequality) and 1 (complete equality).

2. GINI COEFFICIENT (G) AND LORENZ CURVE

These two measures are by far the oldest and best-known of all inequality measures, dating from the early 1900s. The Lorenz Curve is based on the following graph, adapted from Sen (1973), diagram 2.3:

FIGURE VI.1

THE LORENZ CURVE



The observation is ranked by increasing expenditures, and then the expenditure of each percentage of population is graphed. Perfect equality produces the diagonal line; otherwise the Lorenz Curve is produced, always below the diagonal. There are problems with the Lorenz Curve. While it is diagrammatically quite revealing, it is of limited use for ordinal ranking purposes. Lorenz Curves often cross, making unambiguous ranking of the crossing pair impossible; the observer cannot know in a strict sense which curve reflects a state of greater equality. If the curves do not cross, the lower the curve, the less equal the distribution. Atkinson (1970) presents a series of examples of crossing Lorenz Curves with regard to countries' national incomes, and argues therefore that the curve is not very useful.

A more mathematical and precise representation is the Gini Coefficient, which does *not* suffer from unrankability. This measure "is the ratio of the difference between the line of absolute equality and the Lorenz Curve — ...the shaded area — to the triangular region underneath the diagonal." (Sen 1973, p. 30). Mathematically, from Berne and Steifel (1979b):

$$G = \frac{\sum_{i=1}^{N} \sum_{j=1}^{N} P_i P_j \left| E_i - E_j \right|}{2 \left(\sum_{i=1}^{N} P_i \right)^2 X}$$

Note that the number of pupils and expenditure per pupil are both completely compared to all other pupils and expenditures respectively. This measure is bounded between 0 (complete equity) and 1 (complete inequity). As we can see, even if the Lorenz Curves cross, the respective Gini Coefficients *will* be rankable. All in all, this coefficient is a well-developed and often used measure, although not without its weaknesses, as we shall note.

3. ATKINSON'S INDEX (A)

Although Atkinson's Index is very complicated, and is derived explicitly from social welfare theory, a brief explanation is in order. It is assumed that there is a specific degree of total welfare associated with each distribution of income. "Atkinson defines what he calls the equally distributed equivalent income (Ye) of a given distribution of a total income, and this is defined as that level of *per capita* income which, if enjoyed by everybody, would make total welfare exactly equal to the total welfare generated by the actual income distribution." (Sen, 1974 p. 38). In other words, if all income were equally distributed, it would take a lower level of per capita income to achieve the same welfare as exists at the current level of per capita income (u) given the current distribution. The more equal our current distribution, the closer the "equivalent income (Ye)" is to the current per capita level, i.e., Ye — > u as we approach perfect equality.

A mathematical adaptation from Berne and Steifel (1979b) yields the following estimable form of A, Atkinson's Index.

$$A = \left[\left(\sum_{i=1}^{n} P_i (E_i / E)^{1-\varepsilon} \right) \Big/ \left(\sum_{i=1}^{n} P_i \right) \right]^{\frac{1}{1-\varepsilon}}$$

where ε = the inequality aversion index, or degree of "social" tolerance toward inequality of revenues, grants, expenditures, etc.; here, $\varepsilon > 0$, $\varepsilon \neq 1$

Here, A is bounded between 0 (complete equality) and 1 (complete inequality).

4. OTHER INEQUALITY MEASURES

Two other measures warrant at least brief mention.

a) Theil's "Entropy" Measure (T). An adaptation from information theory, Theil's index takes the form (from Sen, 1970):

$$T = \log n - \sum_{i}^{n} E_i \log \frac{1}{E_i}$$

b) Herfindahl Index (H). Derived from the field of industrial organization, it is a measure designed to gauge the degree of market concentration, by dividing the market into "shares" of total output. The measure, simply put, is defined as:

$$H = \sum_{i}^{n} S_i^2$$

where S_i is the i^{th} firm's market share. It ranges from 0 (complete equality/competition) and 1 (complete inequality/monopoly). The index is not really appropriate, since given the large number of districts, the variation shows up as very small. Moreover, the index is sensitive to the number of observations, and therefore not useful. The above is based on Gillen (1980).

IV. CHOOSING THE BEST MEASURES

A number of the most commonly used inequality measures have been reviewed, but which of these measures are the "best" to use in making judgments about changes in fiscal equality in Alberta over time?

A. Selection Criteria

An examination of Table VI.1 reveals the 12 criteria we shall use to judge our various measures.[1] It should be noted that these criteria all implicitly involve value judgments. As Sen (1973) notes, all inequality measures are implicitly normative. Bezeau (1979) states that due to the lack of information on the education production function, in this case the positive-normative distinction collapses. And, as we shall see when we discuss the individual measures, *not all the criteria* are strictly applicable to all *measures*.

As Berne and Steifel (1979c) found, and as others have noted [Sen (1973), Atkinson (1970), Bezeau (1979)], different measures of equality may reveal different results for the same data. Therefore, it is in our interest to use the criteria to eliminate "undesirable" measures, so as to reduce the final amount of contradiction.

The first criterion, whether all school systems are taken into account, has two aspects. Naturally one does not wish to exclude any school system from the data, as this would bias the results (in the statistical sense). On the other hand, one may wish to weight some part of the distribution of school systems more heavily than others (e.g., the wealthier school systems). For example, the McLoone Index only examines the bottom half of the distribution ignoring any increases/decreases in the top half.

The second question is the most basic of the criteria: does the measure show an improvement when revenues are transferred from *a "rich" school system to a "poor" school system* (for example, when the grant receipts increase for less wealthy school systems relative to wealthier systems) provided the ranking is not reversed. As Sen (1973), Atkinson (1970) and Bezeau (1979) note, if a measure fails to meet this criterion it should be rejected out of hand as a measure of equality. Assuming the desire for greater equality, it is undeniably clear that an effective transfer or redistribution from rich to poor must increase equality provided that the transfer does not reverse the ranking order. Therefore any measure used must meet this criterion.

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[1] Measures 1-6 are from Berne and Steifel (1979c), 7-9 from Bezeau (1979), and 10-12 from Atkinson (1970).

As Berne and Steifel (1979c) note, equal proportionate changes in revenues do not increase equality, although they may be desirable in that they raise the absolute level of the relative poor. Accordingly, our equality measures should be insensitive to equiproportionate changes, and sensitive to additive changes, as Berne and Steifel (1979c, p. 21) note:

> Such a change is sometimes seen as promoting equity because children with low original revenue benefit proportionately more than children with high original revenues.

The fifth and sixth questions are based on the same ideas as question 4. However, questions 5 and 6 are not included in discussion here, since they hold only for the bivariate regression techniques.

Question 7 deals with the effect of the value of the mean per pupil expenditure on the measure. If a measure is sensitive to the mean, the lower the mean, the lower will be the degree of inequality registered by that measure. Yet while the mean of a distribution may have declined, the variance of that distribution may have remained the same. The logical conclusion should be that inequality (or equality) is unchanged. Even so, in such cases, mean-sensitive measures will record a *decrease* in equality. As Sen (1973) points out, not only is this undesirable, but it gives results exactly opposite to that desired — the lower the average level of educational spending, the greater the impacts of any inequality.

Question 8, whether the measure is independent of the unit of measurement, is important not only for the direct result (if the index is sensitive, then by changing the measurement one may apparently change the equality), but for the indirect reasons: if it is not independent of the unit of measurement, the measure will not pass Criterion 11. Question 9, whether the measure is independent from the sample size, is important in much the same way as Question 8 is, in its direct results and in the indirect effect on Criterion 11.

Question 10 is a crucial question to many of the writers dealing with equality, as it is the way in which various measures meet this criterion that determines their usefulness. In a strictly objective sense, one would hope that the measure is insensitive to the specific part of the distribution in which the transfer occurs. However, most observers would agree that a transfer from the 50th percentile to the 10th percentile should be given more weight than a transfer from the 95th to the 90th percentile (assuming the size of the transfers are equal). Many of the indices weight the lower portion of the distribution more heavily, which may or may not be more preferable depending on the observers' preferences. Atkinson's Index was developed partially in order to meet this "need", and allows varying weights to be assigned to the bottom end of the distribution.

The last two questions are the most interesting from the theoretical viewpoint, receiving a great deal of attention from Sen (1973) and Atkinson (1970); these are also important in the applied sense. The ordinal rankability of any measure (Criterion II) is critical. Obviously, unless the degree of equality can be ranked over time or against observations from other provinces or states, it means little to measure the equality. As both Sen (1973) and Atkinson (1970) point out, different ranking orders can be obtained depending on which measure is used. Therefore, although more than two measures are examined in this study, for ranking purposes one or two measures only are selected.

Question 12 is obviously related to 11, in that distributions can be ranked if a quantifiable degree of inequality is available. Very few measures allow quantifying the amount of inequality unambiguously, with a notable exception of Atkinson's Index.

The 12 basic criteria for selecting the "best" measures are of varying degrees of importance and the selection of the desirable measure depends in many ways on the importance assigned to each criterion, which is a subjective issue.

B. **The Best Statistical Measures**

Examining Table VI.1, the range measures have virtually no redeeming characteristics. However, they do yield some interesting facts.

TABLE VI.1

General Purpose Statistical Measures

Criteria or Value Judgment Questions	Range and Restricted Range	Federal Range Ratio	Relative Mean Deviation	Variance and Standard Deviation	Coefficient of Variation
1. Are all school systems taken into account?	No	No	Yes	Yes	Yes
2. Does the measure show an improvement in equality when revenues (expenditures) are transferred from a "poor" school system to a "rich" school system (Pigou-Dalton criterion)?	No	No	No	Yes	Yes
3. Is the measure insensitive to equal percentage changes in revenue expenditure?	No	Yes	Yes	No	Yes
4. Is the measure sensitive to equal additive changes in revenue expenditures?	No	Yes	Yes	No	Yes
5. Is the measure insensitive to equal percentage changes in wealth?	Not applicable to univariate measures				
6. Is the measure sensitive to equal additive changes in wealth?					
7. Is the measure independent of the value of the mean expenditure/pupil?	No	Yes	Yes	No	Yes
8. Is the measure independent of the unit of measurement?	No	Yes	Yes	No	Yes
9. Is the measure independent of the sample size?	No	Yes	Yes	Yes	Yes
10. Is it insensitive to which part of the distribution the transfer occurs in?	No	No	No	Yes	Yes
11. Does the measure allow ordinal ranking for comparison purposes?	No	Yes	Yes	No	Yes
12. Does the measure allow one to quantify the inequality?	No	No	No	Yes	Yes

TABLE VI.2

Special Purpose SWF-Based Measures

Criteria or Value Judgment Questions	McLoone's Permissible Variance Index	Gini Coefficient	Atkinson's Index	Theil's Measure	Herfindahl Index
1. Are all school systems taken into account?	No	Yes	Yes	Yes	Yes
2. Does the measure show an improvement in equality when revenues (expenditures) are transferred from a "poor" school system to a "rich" school system (Pigou-Dalton criterion)?	No	Yes	Yes	Yes	Yes
3. Is the measure insensitive to equal percentage changes in revenue expenditure?	Yes	Yes	Yes	Yes	Yes
4. Is the measure sensitive to equal additive changes in revenue expenditures?	Yes	Yes	Yes	Yes	Yes
5. Is the measure insensitive to equal percentage changes in wealth?	Not applicable to univariate measures				
6. Is the measure sensitive to equal additive changes in wealth?					
7. Is the measure independent of the value of the mean expenditure/pupil?	Yes	Yes	Yes	Yes	Yes
8. Is the measure independent of the unit of measurement?	Yes	Yes	Yes	Yes	Yes
9. Is the measure independent of the sample size?	Yes	Yes	Yes	No	No
10. Is it insensitive to which part of the distribution the transfer occurs in?	No	No	No	No	Yes
11. Does the measure allow ordinal ranking for comparison purposes?	Yes	Yes	Yes	No	Yes
12. Does the measure allow one to quantify the inequality?	No	No	Yes	No	No

The next measure, the relative mean deviation, has some desirable characteristics, but violates the Pigou-Dalton condition — if the transfer does not cross the mean, it is not registered. "It is, therefore, rather arbitrary — a bit like some criminal laws in the United States which come into operation only if some state boundary is crossed in the process of the crime." (Sen, 1973, pp. 26 - 27). Therefore we shall not estimate this measure.

The variance and the standard deviation meet many of our criteria, but fall down due to their dependence on the mean and the units of measure, effectively eliminating their usefulness, as they cannot be ordinally ranked. However, dividing the standard deviation by the mean (the coefficient of variation) yields the best variable by far of the statistical analysis techniques, since it meets all of the criteria. It is used often by other writers, and is ideal for cross-sectional comparisons. We will certainly be estimating this variable.

C. The Best SWF-Based Measures

The first index in Table VI.2 is McLoone's Index. As mentioned before, this index is based on some *a priori* assumptions: only the bottom 50% of the distribution are to be examined, with complete equality achieved when they all make (or are able to make) the median expenditure. This assumption is in many ways analogous to the "save harmless" criterion, which holds that no one should be worse off after a change in circumstance than he was before. There is nothing to stop the above-median districts from spending even more without upsetting the degree of equality, as measured by McLoone's Index. Given its *a priori* assumption, we can see that McLoone's Index will violate some of our criteria, most notably Pigou-Dalton. However, where the implicit preferences of McLoone's Index are accepted, it meets all desired criteria. Therefore, it will be presented in our empirical results.

The Gini Coefficient is an almost perfect index, meeting all criteria, but falling down slightly in one way. As Atkinson (1970) notes, Gini gives more weight to the center of the distribution which may not be in keeping with social preferences. He points to this characteristic as being a major fault of the Gini Coefficient, noting that his index performs in this way only if desired. Still, it is a minor fault, especially compared to the "bonus" of the Gini Coefficient — unlike any other index, it compares all levels to all other levels.

Atkinson's Index is virtually perfect. The only criterion it fails to meet is its greatest strength — the fact that it can be adjusted, based on various preferences, to weight whichever part of the distribution is desired. We shall estimate the index using a range of preference weights. Theil's Measure satisfies most of the criteria, but does suffer from dependence on the sample size, ruining its ordinal ranking ability. Unless one accepts Theil's argument that the smaller the number of observations, the less should be the impact of one person having all the resources (i.e., the greater the equality of a given distribution — not intuitively appealing), this measure must be rejected. Much the same argument can be made regarding the Herfindahl Index, which is also sensitive to the sample size. As a result, neither of them will be used.

V. APPROACH

The single source of data for the study was the Statistical Supplement to *Alberta Education Annual Reports* 1971 to 1978 inclusive. The 1978 *Report* was the most recent edition available at the time. Data were assembled for all Alberta school systems operating throughout the period 1971-1978 (n = 137) and included total enrolments, equalized assessment (EA), instructional expenditure (IE), total or gross operating expenditure (GE), SFPF grants (SF), total provincial grants (PR), and requisition rates.

These data in turn were mounted on interactive computer files using the facilities of the University of Alberta Computing Services Division.

The means and values of the coefficients of variation (CV), the Gini Coefficients (GI) and McLoone's Index (MC) for each revenue and expenditure variable were calculated for each year of the period. Additionally, correlations were drawn between school system wealth (equalized assessment per pupil, EAP) and the revenue and expenditure variables to test for any apparent wealth bias in the grant or expenditure patterns.

Simple linear regression was used to check for any persistent time trends, and comparisons were made among school systems by organizational type, size (measured by total enrolments), and geographic location, (i. e., urban/rural, defined as "city" and

TABLE VI.3

Mean Values of Selected Variables for Selected Years, Alberta

Gross Expenditures Per Pupil	**1971**	**1975**	**1978**
Counties	$ 932	$1,543	$ 2,031
Divisions	1,018	1,641	2,209
Separate	712	1,302	1,744
Public	926	1,553	2,055
Urban	810	1,339	1,799
Rural	864	1,503	1,997
0 - 1,000 pupils	795	1,469	1,971
1 - 2,000 pupils	912	1,509	1,980
2 - 3,000 pupils	937	1,532	2,029
> 3,000 pupils	882	1,418	1,899
Provincial	857	1,480	1,969
SFPF Grants Per Pupil	**1971**	**1975**	**1978**
Counties	$ 773	$1,076	$ 1,412
Divisions	795	1,100	1,434
Separate	602	873	1,142
Public	735	1,053	1,363
Urban	677	953	1,206
Rural	670	1,005	1,295
0 - 1,000 pupils	642	957	1,239
1 - 2,000 pupils	749	1,037	1,355
2 - 3,000 pupils	748	1,037	1,314
> 3,000 pupils	732	1,015	1,291
Provincial	697	998	1,283
Requisition Rates	**1971**	**1975**	**1978**
Counties	12.68	21.26	29.69
Divisions	12.56	21.24	31.16
Separate	12.13	18.54	27.59
Public	12.35	20.42	29.34
Urban	13.36	17.79	28.10
Rural	12.03	19.75	28.10
0 - 1,000 pupils	11.60	18.03	25.83
1 - 2,000 pupils	11.72	20.54	31.28
2 - 3,000 pupils	13.46	21.60	30.56
> 3,000 pupils	13.14	19.70	28.27
Provincial	12.19	19.47	28.10
Equalized Assessment Per Pupil	**1971**	**1975**	**1978**
Counties	$7,908	$ 9,918	$12,166
Divisions	8,158	11,098	13,765
Separate	3,406	5,437	7,357
Public	8,219	10,948	13,813
Urban	5,786	10,373	13,238
Rural	6,737	8,779	12,350
0 - 1,000 pupils	6,409	8,446	13,340
1 - 2,000 pupils	7,560	9,909	11,218
2 - 3,000 pupils	5,605	7,751	10,072
> 3,000 pupils	6,903	10,554	13,847
Provincial	$6,607	$9,005	$12,473

"independent" school districts ("urban") vs. "other" school systems ("rural").

VI. FINDINGS

A. Mean Values of Selected Variables

Comparisons between various subgroups according to the mean values of grant and expenditure variables are revealing. (See Table VI.3.)

1. COUNTIES AND DIVISIONS

In general, we find that the divisions are richer than the counties (with reference to equalized assessments per pupil) and have higher requisition rates than counties. Curiously, they also receive (insignificantly) higher average SFPF grants. As we might suspect, the divisions also have significantly higher gross expenditures than the counties (8.8% higher in 1978). Still, the counties have consistently higher expenditures then the provincial average, and on average are richer than the provincial mean, receive higher SFPF grants than the provincial average, and record higher requisition rates than the provincial average, although these differences are not that significant.

2. SEPARATE AND PUBLIC SCHOOL SYSTEMS

The separate school districts, with roughly 18% of the pupils and in number totalling 33% of the school districts in 1978, are distinctly different from the public districts according to the data. They are markedly less wealthy than the public systems, having on average only 53% as much equalized assessment per pupil in 1978. The separate districts also have somewhat lower requisition rates — 2% in 1971, 6% in 1978. They also receive much lower average SFPF grants — 19% in 1978. However for total provincial grants, the difference is only 11% in 1978. In contrast public schools spent 18% more per pupil in 1978. Additionally, while SFPF grants as a percent of total expenditures are higher for the public districts (66.3% to 65.6% in 1978), total provincial grants as a percent of expenditures are higher for the separate districts (80% to 76% in 1978).

3. CITY (URBAN) AND RURAL

While the 19 urban (city) districts constituted only 14% of the number of districts in 1978, they had 56% of the number of pupils. For the early 1970s, the city districts had less wealth per pupil than the rural, but surpassed those districts in the late 1970s (7% higher in 1978), presumably as a result of rapid urban industrial /commercial growth. As far as requisition rates go, the two subgroups alternate in dominance over the period, ending up with identical averages in 1978. With regard to SFPF grants, the rural areas receive slightly higher average grants, 7% in 1978. Finally, the rural districts consistently spend more per pupil on average (11% more in 1978).

4. SCHOOL SIZE

The smallest school districts (fewer than 1,000 students) constitute 46% of the districts but have enrolled in their schools a substantially lower proportion of total pupils. These districts hover around the provincial average for equalized assessment. They are also usually as rich or richer than the other-sized districts. The 1,000 to 2,000 pupil districts reflect provincial-average wealth. The 2,000 to 3,000 pupil districts are consistently the poorest districts, well below all other levels. Finally, the districts with more than 3,000 pupils, which comprise 18% of the number of districts but more than half the students, hover around the provincial average, but usually enough above it to be the relatively richest subgroup.

For most years, the poorest districts (2,000 to 3,000 pupils) register the highest requisition rates. The ranking of the other districts is not that strong, as the 1,000 to 2,000 pupil districts and the greater than 3,000 pupil districts alternate in which has higher rates. However, the smallest districts consistently have the lowest requisition rates, and they also consistently receive the lowest average SFPF grants. The 1,000 to 2,000 pupil and the 2,000 to 3,000 pupil districts receive virtually identical SFPF grants on average each year. The top range of districts, the greater than 3,000 pupils, receives slightly lower average SFPF grants.

Finally, the two middle range districts are the highest spending, being but a few dollars apart. Aside from that, on average the greater than 3,000 pupil districts are the lowest spending districts, although the range is only 7% in 1978.

5. SUMMARY

Some very distinct relationships, as expected, have emerged. Counties and divisions are richer than average, exhibit higher requisitions rates, receive higher average grants and have higher than average expenditures. The separate school systems are poorer than their public counterparts, requisition at lower rates, receive lower average SFPF grants and make lower gross expenditures. The city districts are slightly richer than the rural, requisition at roughly the same rates, and receive lower average grants (especially for total provincial grants, which include special education and other grants), and register somewhat lower expenditures. Among the differentiations by district size the smallest and largest groups record lower values than the two middle range subgroups. Finally, as we illustrated more explicitly elsewhere,

TABLE VI.4

Inequality Measures for Selected Variables: Provincewide[1]

Gross Expenditure Per Pupil	1971	1972	1973	1974	1975	1976	1977	1978
Coefficient of Variation	.2004	.2398	.2388	.2113	.2069	.1997	.1811	.1928
McLoone's Index	.9357	.9444	.9409	.9441	.9518	.9413	.9432	.9424
Gini Coefficient	.0426	.0481	.0551	.0438	.0436	.0459	.049	.0389
Atkinson Index, $\varepsilon = 50$	.2189	.2415	.2589	.2907	.2042	.1827	.1608	.2251
Wealth Correlation	.6019	.6526	.4670	.7299	.6612	.6730	.6501	.5934
Instructional Expenditure Per Pupil								
Coefficient of Variation	.1368	.1497	.1580	.1494	.1621	.1650	.1437	.1359
McLoone's Index	.9289	.9401	.9355	.9317	.9397	.9271	.9202	.9418
Gini Coefficient	.0465	.0469	.0437	.0475	.0507	.0549	.0647	.0491
Atkinson Index, $\varepsilon = 50$	.2009	.2069	.1989	.4626	.2401	.2816	.2378	.3134
Wealth Correlation	.4857	.4856	.6048	.6609	.6606	.7566	.6626	.5683
Average SFPF Grants								
Coefficient of Variation	.1883	.1974	.1914	.1841	.1694	.1802	.1654	.1888
McLoone's Index	.9455	.9007	.9570	.9523	.9542	.9634	.9543	.9405
Gini Coefficient	.0404	.0439	.0383	.0377	.0370	.0372	.0386	.0477
Atkinson Index, $\varepsilon = 25$	.3220	.2889	.3195	.3702	.4225	.8257	.5444	.5408
Wealth Correlation	.3991	.3179	.00184	.4427	.4624	.3107	.3068	.2691
Average Total Provincial Grants								
Coefficient of Variation	.1863	.1994	.1914	.2033	.1634	.1705	.1532	.1805
McLoone's Index	.9480	.9586	.9686	.9593	.9545	.9417	.9387	.9292
Gini Coefficient	.0390	.0428	.0382	.0378	.0399	.0394	.0404	.0434
Atkinson Index, $\varepsilon = 25$	.2363	.2972	.3359	.3546	.3883	.8483	.5042	.5098
Wealth Correlation	.4535	.3938	.0933	.4140	.3527	.3853	.3126	.2362

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[1] In all measures, except McLoone's, the closer to zero ("0"), the greater the equality; in McLoone's, the closer to one ("1"), the greater the equality.

there are strong positive correlations in most cases between wealth, SFPF grants and gross expenditure. However in most cases, there is little correlation between any of these variables and the requisition rate, except for a weak positive relationship between the requisition rate and gross expenditure.

VII. INEQUALITY MEASURES FOR SELECTED VARIABLES: PROVINCE-WIDE

Linear regressions on a time trend were conducted to establish whether or not any persistent, systematic patterns in the inequality measures were apparent over the period 1971-78. Results were inconclusive, and in some cases, contradictory. (See Table VI.4.)

With regard to gross expenditures per pupil, the analysis yielded a marked downward trend in the coefficient of variation, indicating a considerable rise in equality of spending per pupil among all school systems. The McLoone Index, Gini Coefficient, and Atkinson's Index, however, followed no predictable pattern. The findings are inconclusive.

The Gini Coefficient reflects a distinct upward trend (i.e., less equality) in relation to instructional expenditures per pupil. Atkinson's Index also registers an upward trend, although more moderate. The Coefficient of Variation shows no trend. The findings are inconclusive.

Insofar as grants are concerned, none of the inequality measures reveals any trends over the period either for average SFPF grants or for average total provincial grants.

VIII. CORRELATIONS: WEALTH & INEQUALITY MEASURES:

A. Wealth Correlations of Selected Variables:

Several interesting patterns emerge when the movements of wealth correlations over time are examined. In 1973, the grant/wealth correlations drop to virtually zero, and they in general move together over time, with a correlation of .8638.[1] The gross expenditure/ wealth correlation also is highly correlated with the grant/wealth correlations. On the other hand, the instructional expenditure/wealth correlation is not correlated with any of the measures except the gross expenditure/wealth correlation, and then weakly. This is not surprising, as gross expenditure is much more correlated than instructional expenditure with the grants. (Figure VI.2)

There seems to be some relationship in the degree of correlation of grants with wealth, and of gross expenditures with wealth, but not of instructional expenditures with wealth.

B. Coefficients of Variation

Concerning Coefficients of Variation (Figure VI.3), the degree of equality of SFPF grants and the degree of equality of total provincial grants move together over time. Also grant inequality and gross expenditure inequality positively correlated over time — the more unequal the grants, the more unequal gross expenditures. The relation to instructional expenditures is negative, but not significant. Finally the degree of equality of gross expenditures and instructional expenditures is (weakly) positively correlated.

In summary, the relationships among the various coefficients of variation would tend to suggest that the more equal SFPF and total provincial grants, the more equal gross expenditures. The relationship is much weaker and in the opposite direction for instructional expenditures.

C. Gini Coefficients

Examining the Gini Coefficients (Figure VI.4), the degree of equality of the two grant categories is fairly highly correlated over time. The divergence basically occurs when school grants became significant in 1975. All the other correlations are insignificant, but there is an interesting trend. The degree of equality (as measured by the Gini Coefficient) of the grants is negatively correlated with the degree of equality of gross expenditures. For instructional expenditures, a positive correlation exists with total grants and a negative correlation with SFPF grants. However, both correlations are very insignificant.

In summary, according to the Gini Coefficients the greater the degree of inequality of grants, the greater the degree of equality of gross expenditures. This is opposite to the correlation between the coefficients of variation, although in this case the correlations do not carry the same degree of significance. Still, it is an interesting contradiction —as elsewhere, different measures yield different results.

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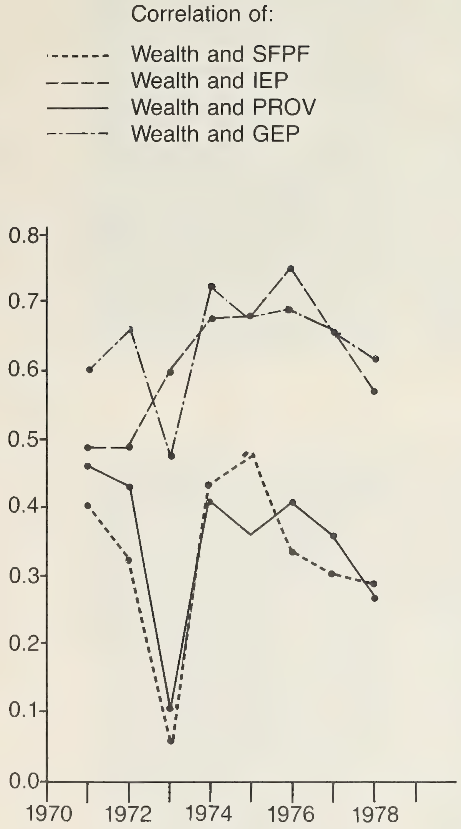
[1] *Given eight observations, a value of .6049 is required for the correlations to be significant at the 5% level.*

FIGURE VI.2

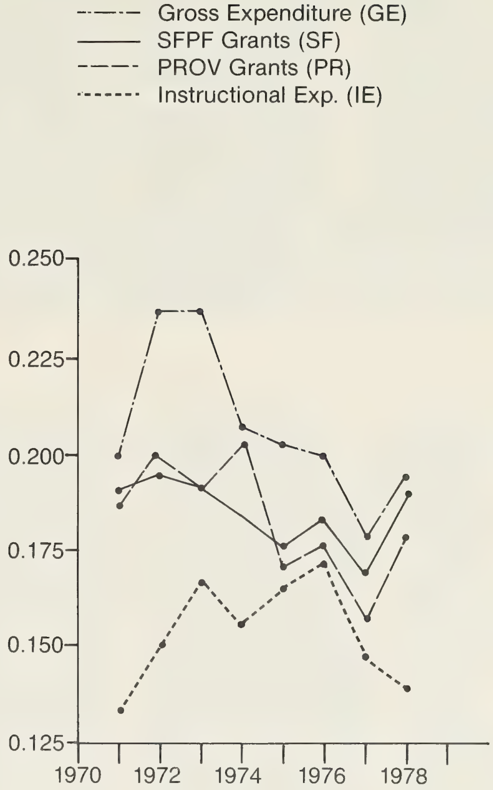
The Correlations of Wealth and the Relevant Variable



	COGE	COIE	COPR
COIE	.3330		
COPR	.8051	−.0720	
COSF	.8411	.0636	.8638

FIGURE VI.3

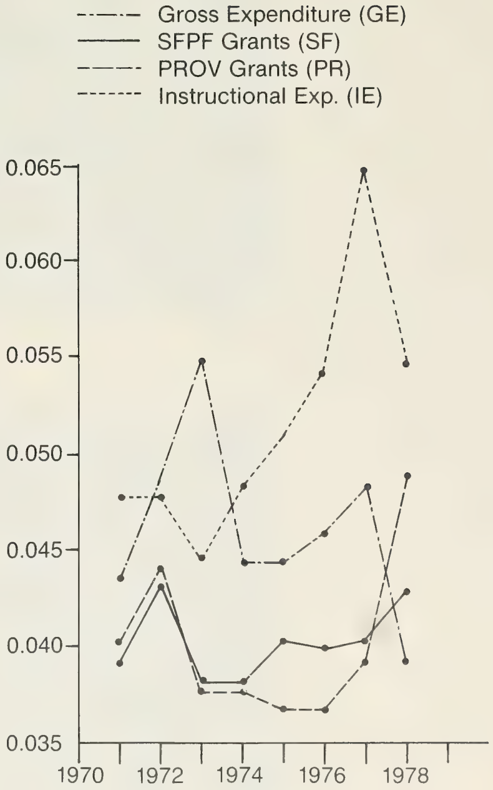
The Coefficients of Variation



	CVGE	CVIE	CVPR
CVIE	.3611		
CVPR	.7010	−.1431	
CVSF	.6878	.2190	.8585

FIGURE VI.4

The Gini Coefficients



	GIGE	GIIE	CIPR
CIIE	−.0592		
CIPR	−.3659	.1169	
CISF	−.4138	−.2308	.8517

D. **McLoone's Index**

It is important to remember that this measure does not examine the same distribution as the other equality measures; it looks at the bottom one half of the distribution only and is not shown here.

There are no significant correlations between any of the indices here. Two almost significant weak relations appear. The relation between the degree of equality of instructional expenditures and the degree of equality of gross expenditures is weakly significant and positive. Also the more unequal SFPF grants, the more equal instructional expenditures, although this too is insignificant.

In summary, examining the correlations among various McLoone Indices reveals very little information, and none at any level of statistical significance!

IX. INEQUALITY MEASURES FOR SELECTED VARIABLES: COMPARISON GROUPS

The values of the inequality measures (Coefficient of Variation, Gini Coefficient, Atkinson's Index) were calculated for each year 1971-78 for school systems grouped according to organizational type, size, and location (rural/urban). Again, regression analysis was conducted to test for time trends. Comparisons are made only within each group.

A. **Divisions.**

Apparently no trends exist here, except for the distribution of the requisition rate, which moves toward equality at a steady rate. As with the overall case, the more unequal the SFPF grants, the more unequal gross expenditure. However, this is a weak and imprecise relationship, partially dependent on the measure selected.

B. **Counties**

Few trends occur among counties. The ever-present, strong increases in equality of requisition rates, plus a weak increase in the correlation between wealth and SFPF grants are evident. Once more, no distinct relationship seems to exist between SFPF equality and gross expenditure equality. However, the distribution of SFPF grants, gross expenditure and the requisition rates are much more equal among counties than among divisions. Perhaps counties are a more "natural" grouping, and more homogenous than divisions.

C. **Separate**

Distinct trends appear according to all measures for the separate system measures. Like the other systems, there is a distinct increase in requisition rate equality. However, there are marked increases in the correlations of wealth with SFPF grants and with gross expenditures, and the inequality of SFPF grants over time. The inequality of gross expenditures among separate districts also increases steadily from 1971 to 1978 partly as a result of these other changes. Finally, there is virtually no correlation between wealth and gross expenditure, which is not the case with the public system.

D. **Public.**

The public school systems, as a group, reveal more inequality over all variables than do the separate systems, as measured by the Coefficient of Variation.

E. **Urban.**

The Gini Coefficient on the SFPF grants reflects a distinct upward trend, showing increases in inequality. This trend is combined with a distinct downward trend in the correlation between wealth and the SFPF grants, implying therefore that the increasing inequality in grants is counter-balancing the wealth inequality. However, basically no trend in the equality of gross expenditure is evidenced.

F. **Rural.**

Requisition rate equality increases for the rural districts. Other than that, no significant trends seem apparent — only random movements. Apparently there is no relationship between the equality of SFPF grants and the equality of gross expenditures.

G. **Size**

The smallest school districts exhibit the increase in requisition rate equality noted elsewhere, plus a weak increase in the equality of gross expenditure. The other-sized districts share the first characteristics, but not the second. None of the groups shows any trends for correlation of wealth and gross expenditure (all values are insignificant for the two larger groups) or the correlation of wealth and SFPF grants, except in the latter case for the 2,000 to 3,000 pupil group which shows a very weak downward trend toward insignificance. It should be noted that the smaller the district size, the higher the correlation of wealth and gross expenditure and of wealth and SFPF grants. None of the other districts shows any trends for the degree of equality within their distribution except for the 1,000 to 2,000 student districts, where there is a distinct downward trend in the degree of inequality of gross expenditures.

On average, the smaller the size of the districts, the higher the degree of inequality of both SFPF grants and gross expenditures as distributed within these groups. This fact, combined with the higher wealth correlation and high degree of wealth inequality among smaller districts, shows that one of the major causes of a showing of inequality is the great deviation from mean (often in both directions) that one finds in the smaller districts. This finding is in line with the literature; for example, Bezeau (1979) found that Ontario's extensive consolidation of districts increased equality significantly.

VII. CONCLUSIONS

A. The Inequality Measures

1. There are a number of measures which can be employed effectively in drawing conclusions about levels of inequality and changes to inequality over time. In this study, the Coefficient of Variation, the Gini Coefficient, and the Atkinson's Index were selected because they satisfy a large number of the criteria described in Tables VI.1 and VI.2. However, these measures are not the "perfect" measures; indeed, the Coefficient of Variation can be criticized on grounds similar to the Gini: it is especially good at measuring inequality among high expenditures, grants, requisition rates, rather than among low. In other words, the value of the Coefficient of Variation is more sensitive to changes in the top-end of the distribution than to changes in the bottom-end of the distribution.

To illustrate, using Alberta school systems, suppose a new provincial grant structure were introduced, such that the former highest average SFPF grant earner (School System #1) now received a lower proportion of total SFPF grants, and the former second-highest average SFPF grant earner (School System #2) received a higher proportion of total SFPF grants. Suppose further that the rank order of School Systems #1 and #2 remained the same under the new granting structure and that all other school systems were unaffected by the change. In these circumstances, the Coefficient of Variation would register an increase in equality, whereas the Gini Coefficient would register an increase in equality when the transfer occurred between school systems near or about mid-range of the distribution.

It seems reasonable to argue that a sound inequality measure should be more sensitive to transfers from upper to lower grant earners and spenders or to transfers within the lower range of the distribution, than to those strictly within the upper range.

There likely would be some value in a more complete examination of the merits of the social welfare function-based measures. In spite of their greater mathematical complexity — a reason for their rather cursory treatment in this chapter — they do have the decided advantage of allowing for an explicit accommodation to preferences concerning "who should be 'equalized' ".[1]

2. Measurement of the degree of equality present at a particular time period and of changes in the degree of equality over time, using any of the measures enumerated, does not necessarily "prove" anything about the soundness or fairness ("equity") of the existing school finance plan, nor about the wisdom of any changes to the plan during the period under study. The point has been made that while equalization ought to be a major objective of any sound financial support program, it is not the only major objective. Fair treatment — equity — is another. As MACSF 1969 aptly observed, the central authority may be inclined to introduce initiatives in the interest of "fairness" which of themselves are disequalizing. Such is the case with the special purpose grants of the Alberta Education Grants Order. It is likely that with regard to wealth compensation/equalization, tests of equality should be restricted to the universal instruction grants under SFPF regulations, and the wealth equalizing grants, such as SREG, under the Alberta Education Grants Order.

B. The Data

In order to draw any rigorous conclusions about equality over time among school systems, arranged by organizational type, by size, and so on, per pupil revenue and expenditure data must be standardized for local variations in purchasing power (that is, to reflect local price differentials) and in the mix of local educational program offerings. A logical proxy for this last element would be nominal school system enrolments weighted according to the relative unit costs of programs in which individual students participate, e.g., EOF, LDF, Special Education, Elementary, Junior High, Senior High. Put another way, fiscal equality comparisons should be restricted to school systems of the "same" fiscal circumstance. To do otherwise, to demonstrate that non-equals are treated unequally, tells us very little, if anything at all.

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[1] *The Cowell-Kuga "generalized entropy measure" is an example, of which the Theil's, Dalton's and Atkinson's measures can be viewed as special cases.*

Clearly, since local price data were unavailable[2] and time allowed only for use of aggregate nominal enrolment data, the conclusions drawn in this study regarding changes in equality should be viewed with caution.

C. The Selected Variables

1. For all school systems in Alberta, gross expenditures per pupil became "more equal" over 1971-78 (Coefficient of Variation).
2. Instructional expenditures per pupil became "less equal" over 1971-78 (Gini Coefficient and Atkinson's Index).
3. The more unequal the total provincial grants, the more equal school system expenditures (correlation, both gross expenditure per pupil and instructional expenditure per pupil).
4. Over 1971-78, average total provincial grants exhibit a positive correlation with school system wealth (equalized assessment per pupil), i.e., wealthier school systems received proportionately greater average grant revenue from the province.
5. However, since 1976, the strength of this correlation has decreased, suggesting a shift toward a greater equality of treatment under the grant system for all school boards.
6. This shift has been more noticeable among large urban boards, suggesting that special conditions warranting further review may exist among the smaller systems.

APPENDIX

Comparison of the Alberta Results to Those of Other Studies.

The Alberta results are compared to results presented in two studies: Lawton (1979) presents the Coefficient of Variation for 1975 results for five provinces and the 50 United States (originally taken from L. Brown *et al.*, 1977). Bezeau (1979) presents Gini Coefficients and Coefficients of Variation for Ontario, 1965-76.

These comparisons present three initial problems. The Ontario data are disaggregated into elementary school boards and high school boards, which demands careful comparison with the Alberta data, which is aggregated across boards.

The second problem deals with per pupil expenditure, and its definition in each study, all of which basically use a form of "instructional" expenditure. L. Brown *et al.* (1977) from which Lawton compiles his table (Table VI.5), use "current operating" expenditures, which exclude capital outlays but not administration. Bezeau's definition is somewhat more encompassing, excluding transportation and debt payments. The closest similar figure Alberta has is "instructional expenditure", which is like the two definitions above, but which excludes administration costs. However, given the high correlation between instructional and gross costs (between .6374 and .8092 for Alberta), much less between the varying interpretations of "instruction" we are dealing with, this is not a serious problem, although it should be kept in mind.

The final problem is purely conceptual — the Lawton data are for a point in time only (1975), while the Bezeau and Alberta data are for a time-series. Therefore, the latter two are better comparisons.

First, the cross-sectional Lawton data for 1975. The Coefficients of Variation for Alberta are .1621 and .1359 for 1975 and 1978 respectively. The former is somewhat of an aberration, placing Alberta twenty-fifth among all the states and provinces. The use of the latest figure places Alberta fourteenth or fifteenth, not far behind Ontario's .12. In short, based on this single observation, Alberta does not rank well against other provinces or states. However, almost all those states and other provinces recording this greater equality are small in terms of the number of school systems

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[2] *This situation should be corrected shortly, through Alberta Education's efforts to develop a regional Education Price Index. See Chapter VII of this volume.*

TABLE VI.5

Within State/Province Disparity, 1975
(Ranked By Coefficient of Variation)[1]

State/Province	Coefficient of Variation
Hawaii	.00
Prince Edward Island	.04
Newfoundland	.06
Nevada	.07
New Brunswick	.09
Utah	.09
Flordia	.09
Iowa	.09
Louisiana	.10
Ontario	.12
Alabama	.12
North Carolina	.12
New Mexico	.13
West Virginia	.13
South Dakota	.13
Indiana	.13
Rhode Island	.13
Nova Scotia	.14
Oregon	.14
North Dakota	.14
South Carolina	.14
Kansas	.14
Minnesota	.15
Alaska	.16
Idaho	.16
Wisconsin	.16
Maine	.16
New Hampshire	.16
Pennsylvania	.17
Michigan	.17
Arizona	.17
Mississippi	.17
Delaware	.18
Colorado	.18
Arkansas	.18
Washington	.18
Nebraska	.19
Oklahoma	.20
Maryland	.20
Ohio	.20
Texas	.20
Kentucky	.20
New Jersey	.20
Wyoming	.20
Tennessee	.21
Montana	.21
Vermont	.21
California	.21
Connecticut	.21
Illinois	.22
New York	.23
Massachusetts	.23
Missouri	.24
Virginia	.27
Georgia	.28
Average Canadian	.09
Average United States	.17

when compared to Alberta. This relative smallness, of itself, would result in less measured inequality.

The comparisons to Ontario are in Table VI.6. Note that the Ontario results are an average of Bezeau's (1979) two breakdowns, in order to make approximate comparisons. For both the Gini Coefficient and the Coefficient of Variation, Ontario improved compared to Alberta over 1971-76. However, according to the Gini Coefficient, Alberta's instructional expenditure per pupil can be viewed as more equal than Ontario. On the other hand, the Coefficient of Variation shows Alberta as basically more unequal, although once more the 1978 observation is one of the lowest of the series, while Ontario has a slight upturn in the last year for both measures.

In summary, Alberta seems to be "fairly" equal relative to the United States and the provinces reviewed, but does not rank that high. However, in comparison to the other large province for whch we have data, Ontario, Alberta fares well, although the data are a bit contradictory.

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[1] Sources of data are, for Ontario, Lawrence Bezeau, "Measures of Inequality of per Pupil Expenditure with an Application to Ontario," (paper presented at the Fourth Annual Meeting of the Education Finance Association, Washington, D. C., January 14-16, 1979), Tables 2 and 3; for New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland, A. Blaine Currie, "An Interprovincial Comparison of Educational Investments and Outcomes in Atlantic Canada," (Doctoral diss., University of Toronto, Department of Educational Theory, 1978) Table 30; and for the United States Lawrence L. Brown, Allen L. Ginsberg, J. Neil Killalea, Richard A. Rosthal, and Ester O. Tron, "School Finance Reform in the Seventies: Achievements and Failures," Table 1, *Selected Papers in School Finance*, ed. Esther O. Tron (Washington: U.S. Department of Health, Education and Welfare, 1978).
(Reprinted from *Journal of Educational Finance*, 5(1), Summer 1979.

TABLE VI.6

A Comparison of the Alberta Equality Measures Results to Those of Ontario

Year	Gini Coefficient, Alta.	Gini Coefficient, Ont.	Difference	Coefficient of Variation, Alta.	Coefficient of Variation, Ont.	Difference
1971	.0465	.0633	-.0168	.1368	.1460	-.0092
1972	.0469	.0639	-.0170	.1497	.1380	+.0117
1973	.0437	.0497	-.0060	.1580	.1235	+.0345
1974	.0475	.0406	+.0069	.1494	.1270	+.0224
1975	.0507	.0519	-.0012	.1621	.1000	+.0621
1976	.0549	.0636	-.0087	.1650	.1170	+.0480
1977	.0647	—	—	.1437	—	—
1978	.0491	—	—	.1359	—	—

Sources: Bezeau (1979), Tables 2 and 3; this Study, Table VI.4, Inequality Measures for Selected Variables: Provincewide for instructions expenditure per pupil.

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CHAPTER VII

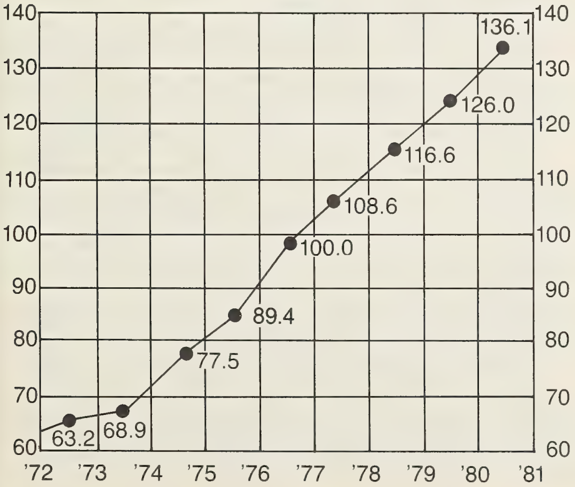
DISAGGREGATING AND REVISING THE ALBERTA EDUCATION PRICE INDEX

Peat, Marwick and Partners; Edmonton, Alberta; 1981
This chapter is abridged from the original study.

I. INTRODUCTION

In order to have a sound background for predicting education costs throughout Alberta, an Education Price Index (EPI) has been used, with revisions as required. This EPI is similar to the well-known Consumer Price Index: both take the prices of a constant basket of goods and services and plot the changes in the prices from period to period. The most recent base year for the EPI was 1976, from a study conducted in 1978.

FIGURE VII.1
Education Price Index: 1972 to Date
1976 = 100



To study regional and year-to-year variations in the purchasing power of local school systems, the EPI was to be refined and applied at regional levels, the regions to be defined in terms of significant price variations.

This improved index could be used in conjunction with studies addressing fiscal equalization and equity (relative to regional differences in costs of programs), and also in studies of diversity of school offerings (relative to the possible need for special financing in atypical areas).

The project proposed was to (1) disaggregate the Alberta Education Price Index, (2) produce regional price indices, and (3) address the question of using a regionalized EPI as the basis for adjustment factors in the provincial grants system to take account of local price variations.

The request for proposal identified four specific objectives:

1. Validate (a) the conceptual soundness of the current EPI; (b) the appropriateness of price items; (c) the accuracy of prices used for representative items.
2. Develop and apply a technique for disaggregating the EPI on a regional basis of significant price variations.
3. Judge the efficacy of using the regionalized EPI as a basis for modifying provincial level funding formulae according to regional price conditions.
4. Provide a detailed description of the validated, and possibly reconstituted, EPI, including an estimate of the values of the regional price indices by component, and analysis and recommendations regarding application to school grants formulae.

Soon after initiation of the project (22 August 1980), the selected contractor and the Steering Committee agreed to deal mainly with validating, assessing, and revising the provincial EPI, leaving regional indices to Stage 2 of the finance studies. The basis of this decision was the condition of the available data.

II. AN OVERVIEW OF INDEX NUMBERS

In order to provide a framework for the study, this section presents an overview of index numbers in theory and practice, including historical background, alternative aggregate index numbers, and development of the EPI.

A. Historical Background

Index numbers have a long history: the classical definition of index number dates back to Edgeworth (1887-1889), who defined an index number as being a number adapted by its variations to indicate the increase or decrease of a magnitude not susceptive to accurate measurement.

Magnitude refers to the general price level or its reciprocal, the value (purchasing power) of money. Edgeworth's work is usually referred to as the probabilistic approach, which aims to capture a broad concept, typically the value of money, without specific reference to any group or application to any set of circumstances.

The first major rejection of the probabilistic approach was given by Keynes in the late 1920s, who viewed the appropriate index number as being of the type sometimes designated as the consumption index. He claimed that purchasing power must always be defined with reference to a particular set of individuals in a given situation, namely those whose actual consumption furnishes us with our standard, and that purchasing power has no clear meaning unless this reference has been given.

Keynes' position, usually called the aggregate approach, refers to some aggregate group such as the income of one-person pensioner families. Keynes' position is now generally accepted and considered as more relevant and appropriate than Edgeworth's.

B. Alternative Aggregate Index Numbers

In practice, index numbers are usually derived to show changes in the general level of prices and/or quantities, given (a) two time periods for a defined consumer group in a certain area, or (b) two areas for a defined consumer group in one time period, or (c) two consumer groups for a certain area in one time period.

The three major types of aggregate index numbers used to illustrate price changes under these scenarios are the Laspeyres index, Paasche index, and Fisher ideal index.

1. LASPEYRES INDEX

The Laspeyres index is most effective in tracking price and/or quantity changes over time, since it is base-weighted to the initial or reference year of the series. Its applicability to changes over time makes it the most widely used index and directly applicable to Alberta Education's purposes. The Laspeyres index can track changes both backward and forward in time.

2. PAASCHE INDEX

The Paasche index can be described as current-weighted in the sense that the weight comes from the current year not the base year. For this reason, a Paasche series is not strictly comparable over time and therefore has a restricted use, especially in the social sciences.

3. FISHER IDEAL INDEX

The Fisher ideal index, a cross between the Laspeyres and the Paasche indices, is used when a single answer is required to describe the alternative splits of value changes into price and quantity changes. The same results can be obtained by combining the results from the Laspeyres and Paasche numbers.

C. Development of the EPI

The EPI was developed several years ago by Alberta Education for the purpose of estimating changes in real revenues accruing to school systems. It is therefore a tool specifically defined to measure changes in the purchasing power of school boards.

The EPI is patterned after Statistics Canada's Consumer Price Index (CPI). Both measure changes over time in the price of a basket of goods and services. The EPI compares the current price of educational goods and services purchased to the price of the same basket of goods in a base year. The CPI allows for similar comparison, but it measures consumer purchases for a typical urban Canadian family.

The original EPI used 1965 as its base year, and was largely an extension and update of the indices derived by Dr. P.J. Atherton in, *The Impact of Rising Price Levels on Expenditures for School Operation in Alberta, 1957-1965.* Three indices dealt with the expenditures of: large area school systems (divisions, counties, consolidated and regional districts), small area school systems (cities, towns, villages), school boards as a whole.

In early 1977, the EPI was revised to reflect the new accounting procedures of the Program Accounting and Budgeting (PAB) function categories. The base year was updated to 1976.

III. VALIDATION OF THE EPI

The validation of the EPI involved an evaluation of both the conceptual framework and the associated field research.

A. Conceptual Framework

The critique of the conceptual framework included a thorough examination and evaluation of departmental publications relevant to the construction of the index. The evaluation was done with respect to the dictates of index theory and common practices which were obtained through the literature review. The five steps of the critique follow.

1. SPECIFICATION OF INDEX TYPE

The researchers concluded the EPI 1976 base developed by Planning and Research Branch was conceptually very sound. The EPI is a base-weighted Laspeyres index which is the correct specification for capturing price changes over time for a certain group (schools) and a specific area (Alberta).

2. CONSTRUCTION/WEIGHTING OF THE INDEX

The current EPI is constructed in the same fashion as Statistics Canada's CPI. The index defines a bundle of goods which parallels the six major PAB categories: instruction, administration, operations and maintenance, transportation, debt servicing, and contribution to capital.

The weight assigned to each category is the category expenditures expressed as a percentage of total expenditures in all categories.

All weights were recalculated and shown to be accurate in the base year. The weights were also tracked over time to see if they still reflected board spending patterns. Between 1976-1978, the movement in each category was less than 1% of total expenditures, and consequently had little or no impact on total expenditures.

Overall, construction and weighting were conceptually sound and mathematically accurate.

3. SAMPLING

The sampling technique used to select the 30 jurisdictions from which levels 2 and 3 weights were calculated was not theoretically rigorous. However, the boards were selected on the basis of geographic size and population. In the researcher's opinion, the resulting sample appears to be representative and meet the requirements of face validity.

4. BIAS

Laspeyres index numbers are usually considered to overestimate price increases since substitutes are not considered. For example, take the case where beef is a component of a price index whereas pork is not, and the price of beef rises sharply but the price of pork remains constant. In this case, consumers may substitute pork for beef and therefore absorb a smaller increase in food prices. However, the price index as defined would not capture this shift in consumer behavior. Nevertheless, the case for upward bias may be weaker with respect to purchasing education services since the major items purchased are services from teachers, and there is institutional resistance in the system to substituting cheaper teachers for more expensive ones on the grounds of cost reduction.

The 1978 EPI was designed for add-on capability by designating "other" categories and giving them a constant value. In addition, proxies for debt servicing and contribution to capital had not been formally incorporated in the index at the time of publication and therefore were left as constant until the fieldwork commenced. The result of the "other" and undefined proxies was that 13.9% of the EPI was constant, which represented a significant downward bias in the index. This problem was resolved in the revised EPI.

The net result of the two biases cannot be precisely defined, but is most probably on the downward side.

5. PRICE VS. COST INDEX

A pure price index measures the change in price of an item under the assumption that the quantity and quality of that item do not change. A cost index looks at the total cost of purchasing an item allowing for changes in price, quantity and quality. While quantity is easy to control for, quality is not.

In the case of the EPI, quality increases related to teacher salaries can be monitored via movements in the experience/education grid.

If the purpose of the EPI is to measure the cost increases to school boards due solely to the upward movement in prices, then the experience/education increment should be dropped from the index. Therefore, the teacher salaries component would be defined as the weighted sum of school board (or bargaining unit) teachers salaries in each square of the grid.

In fact, in 1979 a new formula was developed by the Planning and Research Branch which isolated the pure price increases to which an experience factor could be added. This formula is used for the revised EPI. (This formula and all others mentioned in this report can be seen in the original Peat, Marwick and Partners reports.)

B. Field Research

Evaluation of the field research involved a complete review of internal documentation, an interview program of financial officers of school district administrations and Alberta Education.

1. DATA COLLECTION

The collection of price items used in the calculation of the EPI was evaluated according to given criteria. The evaluation found timeliness to be good; accuracy, average; and consistency, documentation, and repeatability below average.

There was every indication given in the interviews that the EPI was calculated in a timely fashion from the Planning and Research Branch viewpoint. Consistency, however, was not in evidence. Price items were not collected on a given date each year and a description of the items collected, e.g., the length and quantity of cassette tapes, was not apparent for many items. The accuracy of the price items was given an average rating. There were discrepancies between the published index numbers and those used in the index but Statistics Canada revisions could account for those differences. Documentation was in handwritten form and difficult to follow.

In summary, the researchers could not readily repeat the EPI. The lack of price item descriptions, quantities purchased, purchase dates and misclassifications made comparability with the 1976-1978 period difficult.

2. PRICE PROXIES

The price proxies were evaluated on two criteria (representativeness and availability) to determine how well they approximate the bundle of goods they represent.

The adequacy of the proxies was reviewed during the interview program, where relevant, and most were considered to be excellent. The few suggested additions and changes were incorporated into the revised EPI.

C. Conclusions

The validation of the field research and the conceptual framework uncovered a number of tasks prerequisite to producing an accurate and repeatable EPI:

- rigorously define the type, quantity, source and collection date for each level 5 price item;
- remove the downward bias inherent in the index by defining or removing the various constant terms within it;
- set up systematic documentation for future data collection;
- review and expand the list of price proxies and suppliers;
- clean up past data collection efforts;
- drop the grid increment to teacher salaries in order to obtain a pure price index.

The researchers resolved these matters, and the new 1978-based EPI contains these revisions.

IV. DISAGGREGATION OF THE EPI

The disaggregation of the EPI to accurately capture price increase variations across the province was the most complex phase of the project, involving critique of previous disaggregation efforts, methodology development and testing, and results and analysis.

A. Critique of Previous Disaggregation Efforts

During 1965-1976, three Alberta EPIs were developed: one for large area jurisdictions, one for small area jurisdictions, and one aggregate for the entire province, but provincial price changes were used in calculating each index. The indices were designed to measure changes in price increases specific to each area. However, each index was actually a cost index not a price index (cost equals price times quantity) because although the price indices applied to each of the three EPIs were the same, the area weights (quantity) differed. Therefore, while the large area costs increases were generally higher, the index did not reveal anything about differences in price increases between the areas.

Disaggregating the EPI in this fashion may not be ideal if the ultimate goal is an adjustment mechanism for funding formulae, because the majority of funding formulae are already designed to compensate for different quantities of consumption. For example, different enrolment levels are handled in the instruction grant, since the payments are made on a per pupil basis.

B. **Methodology Development and Testing**

The purpose of this task was to empirically define regions which systematically capture similar educational price variations in Alberta, by (a) selecting areas of disaggregation, (b) selecting a proxy for educational price increases, (c) selecting the appropriate tests of variance, and (d) creating the software programs to test the price proxies.

1. SELECTING AREAS OF DISAGGREGATION

Five disaggregation configurations were identified as relevant: large area — small area; city districts —other districts; regional office zones; bargaining units; population growth categories.

The first three configurations were chosen for testing after consultation with the Steering Committee. Bargaining units were rejected since many jurisdictions, including Edmonton Public, have opted out of their units. Population growth categories were rejected due to the difficulty in defining growth and establishing the limits for different growth categories, e.g., high, medium, low; the fact that growth areas will generally not be coterminous with school board boundaries; and the shift of regions from one growth category to another because of the dynamic nature of the economy — a volatility which makes compilation and application of the index cumbersome.

2. SELECTING AN EDUCATIONAL PRICE PROXY

The proxy for educational prices had to be both easily accessible and relevant. These restrictions led to the selection of educational cost per pupil as the proxy. This proxy normalized the effect of changing enrolment levels on expenditures. The base data from which price increases were approximated were 1977 and 1978 enrolments and expenditures, separated into the six major PAB categories.

3. SELECTING APPROPRIATE TEST OF VARIANCE

A variance method was used to test the hypothesis that a certain disaggregation configuration explains a significant amount of educational price variation, controlled for enrolment.

4. CREATING SOFTWARE PROGRAMS

Three software programs were created to:

- generate weighted price increases by PAB category for each jurisdiction;
- sort the jurisdictions by regional zone;
- calculate the tests of variance once the price increases were generated.

The three programs and the raw expenditure and enrolment data were mounted on a 7-inch, 9-track tape and stored at the Planning and Research Branch. Programming was done in BASIC.

C. **Results and Analysis**

The analysis of variance was carried out for 128 jurisdictions for which financial data were readily available. The results were disappointing from the standpoint of empirically verifying a disaggregation area which systematically captured similar educational price variations within the province.

Overall results indicated practically no price variations between large and small areas, between city districts and other, and between regional zones. Even going so far as to use a lower confidence level than normal did not yield evidence of variations in price.

The results indicated that we could not reject the null hypothesis that the increase in percentage cost per pupil is the same for each group in any disaggregation configuration. These results held true despite the wide variation among jurisdictions in cost per pupil increases.

At this point, it was decided to examine cost per pupil increases for each of the six major PAB categories individually, to see if the groups in any disaggregation configuration systematically captured variations in their movement.

The large area-small area disaggregation grouping did not explain the variation in instruction, administration and contribution to capital cost per pupil increases. Since instructional costs represent approximately 68% of total board expenditures, it is easy to see why overall cost increases were not captured by the groups. On the other hand, the groups exhibited a significantly different increase in operations and maintenance, and transportation costs.

The configuration of city districts and other captured no differences in the cost of instruction, transportation, and operations and maintenance. Since these Level 1 components comprise by far the largest part of the EPI, it is not surprising that total cost increases were not captured. However, differences in administration costs and contribution to capital costs were captured.

Regional zones did not capture cost per pupil variations by PAB category or in overall terms.

D. Summary of Disaggregation Results

The analysis failed to empirically define a group which systematically captured similar educational price increases in the province. However, these results must be interpreted in light of the following:

Cost per pupil figures were used as a proxy for price increases. The proxy was effective in normalizing for enrolment increases, although it did mask the effects of factors such as economies of scale.

The analysis was limited to one round of price increases due to data constraints.

Some increases in PAB category expenditures were picked up by the disaggregation groupings.

Instruction price increases dominate total price increases, consequently dominating the movement of the EPI.

In general, the assumptions were quite restrictive and further investigation is warranted as additional years of data become available. Nevertheless, given the dominance of the instruction category in the educational expenditure equation, if teacher salary increases are similar throughout the province, it is unlikely that any grouping will capture overall educational price variations.

V. THE REVISED EPI

The decision to revise the EPI was made jointly with the Steering Committee, because of the need to ensure the repeatability and internal consistency of the EPI.

A. Revisions to the EPI

The revised EPI, 1978 = 100, is summarized in Figure VII.2, and detailed in the following pages. The changes were made after personal and telephone interviews with Alberta Education officials, suppliers, and school jurisdictions in the province.

1. WEIGHTING

The revised EPI is a fixed weight, Laspeyres index, 1978 = 100. The major revision is therefore updating the weights to match the pattern of school expenditures in 1978. The level 1 weights (see Figure VII.2) were grouped by major PAB expenditure categories. The major categories were reduced from six to five in 1978 with the lumping of contribution to capital and debt servicing into one category. Each level 1 weight represents category expenditures expressed as a percentage of total school expenditures.

Level 2 and level 3 weights were derived from the audited financial statements of 30 jurisdictions in the province: 20 large area (10 counties, 10 divisions) and 10 small area districts.

The exception occurred in level 2 transportation weights, which the audited financial statements showed as being composed 50% of services purchased. However, analysis revealed that the majority of the services purchased were contracts with school bus operators who in turn supplied drivers and buses. Therefore, in order to arrive at a more accurate level 2 weight, six school officials in jurisdictions operating bus fleets were interviewed to determine the actual breakdown of costs in transportation. This new figure was then used as the basis for the level 2 transportation weights.

2. REVISIONS TO CATEGORIES

The "Other" and "Inventory" categories in the EPI were dropped to remove an apparent downward bias. Supplier lists and item descriptions were refined in order to ensure repeatability and internal consistency.

a. **Instruction:** a composite of all school book price increases replaced the old book list, because only one book from the old book list remained, and the list itself was heavily oriented toward the arts.

Pencils, ballpoint pens, erasers and construction paper replaced 8½ x 11 paper as the proxy for supplies because these items were more representative of instructional supplies, and 8½ x 11 bond paper was a good proxy for administrative supplies. Projectors and videotape recorders were added to the media supplies proxy because they were popular purchases with most jurisdictions.

Secretary/stenographer and receptionist were added to uncertified salaries, level 5 because they better reflected job skills in this category.

The revised EPI dropped the grid increment from the certified salary increases in both Instruction and Administration below in order to obtain pure price increases.

b. **Administration:** Revisions were made in the job classifications in the level 5 proxies for uncertified salaries in order to expand the list and better reflect the skill set of this group.

Because it proved to be a major expenditure item in this category, travel and subsistence was added to level 4 proxies of services rendered, while water was dropped from this category.

c. **Operations and maintenance:** The prairie labor index instead of the national labor index was used because the prairie index is a closer approximation of Alberta price increases.

The relative weights for electricity, natural gas, water and utilities were defined to improve accuracy.

d. **Transportation:** The major change in this category was the reweighting described in "Weighting" above.

e. **Capital Outlay/Debt Services:** The major changes were the definitions of level 4 items for both debt services and capital outlay to remove previous bias when they were considered constant; level 5 interest rates as interest plus principal payments, divided by total outstanding debt; level 5 proxies for furniture and fixtures as desks, chairs and filing cabinets.

B. Specification of the Production System

The production system is designed to ensure the repeatability, accuracy and internal consistency of the EPI through (1) EPI description, (2) EPI calculation, (3) history of level 5 price movements and (4) a summary of weighted level 1 price movements.

Examples of these four reports are included at the end of this chapter.

VI. CONCLUSIONS AND RECOMMENDATIONS

The EPI is designed to monitor province-wide, year-to-year changes in the level of prices for educational programs and services. As part of the validity assessment, the conceptual design and field research were examined, and an attempt was made to disaggregate the EPI.

The results and recommendations of the study are:

A. Previous Efforts

No North American school jurisdiction was located which used educational price indices to adjust funding programs.

B. Disaggregation

The attempts to empirically define regional price variation at the total index level failed to pass statistical tests of significance.

Future efforts to disaggregate at the total index level will probably fail since teacher salaries dominate the index and salary settlements are similar throughout the province.

There appears to be evidence to suggest that there are price differences at the sub-index level, and that these price differences can be captured by regional groups.

Serious consideration should be given to rejecting the bargaining unit as a disaggregation configuration even if it passes statistical tests, since teacher salaries dominate the EPI. Due to this fact, salary settlements would be quickly recovered when grants are adjusted by the EPI, thereby reducing the incentive for a board to strive for a reasonable settlement.

Calculating a disaggregated EPI will require an increase in manpower in order to successfully collect regional prices.

C. Computerization

Computerization will not improve the accuracy of the EPI since level 5 prices are not reported or recorded on the jurisdictional level.

Mounting the price item data on a computer and manipulating it with software programs will decrease the time required to compute the index.

When the Management Information System (MIS) is accessible via a model or enquiry language, machine technology will be of assistance in monitoring weights and their changes over time; tracking actual expenditure per pupil increases over time and comparing them with increases in the EPI; researching possible disaggregation configurations which systematically explain variance in education prices or costs per student.

D. Price vs. Cost Index

A pure price index is the correct index to use to adjust funding formulae, because a cost index includes changes in quantity and the SFPF grants are already designed to compensate for quantity, e.g., the instruction grant is allocated on a per pupil basis; and the transportation grant is based on the number of passengers, capacity, and route eligible miles. Therefore, using a cost index to adjust funding formulae involves double counting with respect to quantity.

The experience increment given to teachers should not be included in the price index since it is a quality adjustment.

E. Components of the EPI

When applying the EPI as an adjustment for funding, five indices are actually considered, not one: instruction index, administration index, operations and maintenance index, transportation index, capital outlay index.

Each component of the index should be applied to the appropriate grant category. In this sense, the index is disaggregated by expenditure function.

F. Educational need

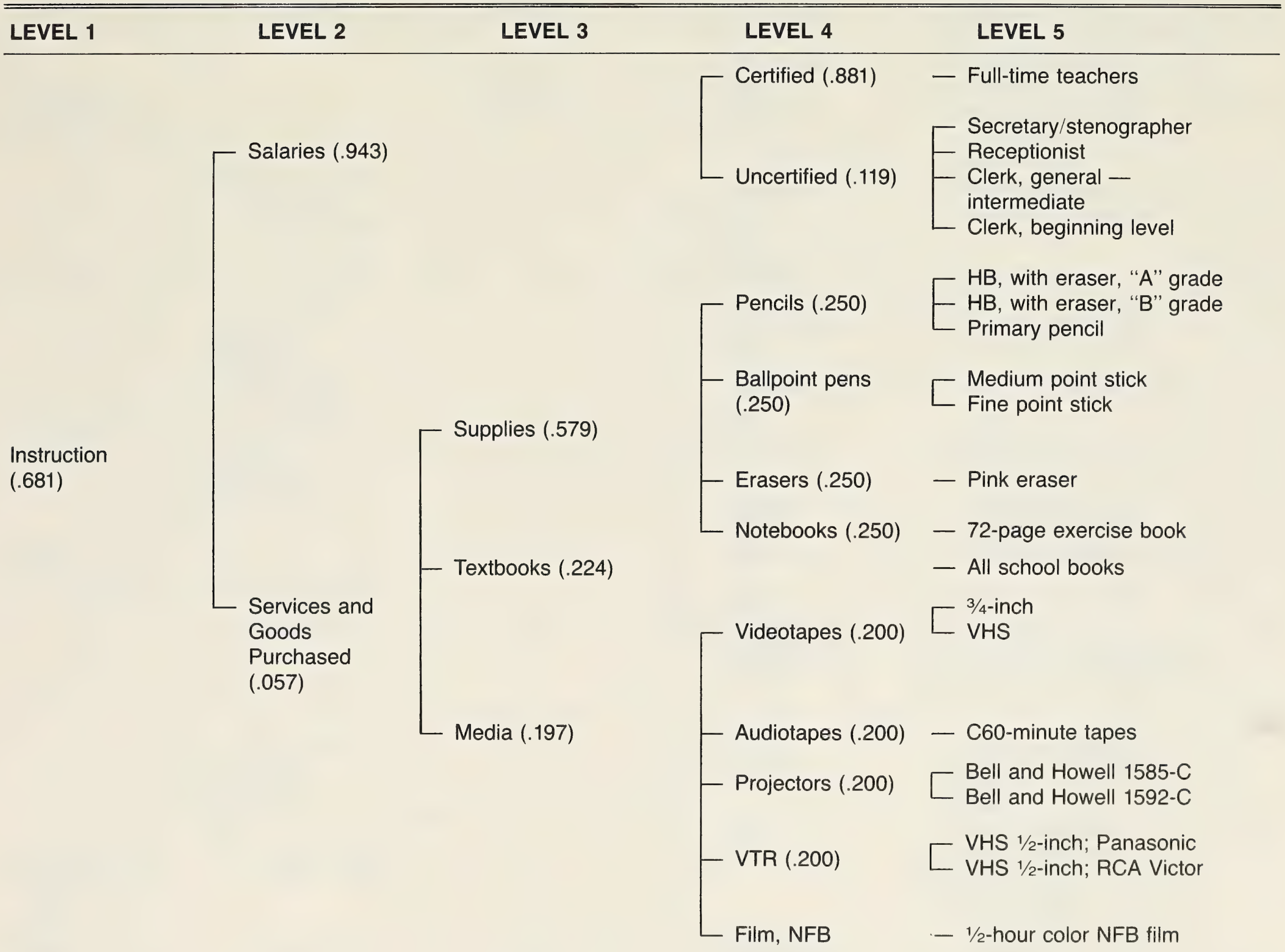
It should be noted that any price or cost of education index does not take into account the differences in expenditure levels associated with varying needs of the student population, e.g., handicapped students. To deal with differences in pupil need, one would have to price out the varying kinds and combinations of school inputs required to meet the needs of different groups of pupils rather than pricing out the same bundle of goods for all students, independent of need characteristics.

G. The New Index

In a follow-up study to this Peat, Marwick and Partners report, Mrs. Stella Johnson computed a new EPI on the basis of the recommendations in this report. Alberta Education is using the revised EPI in the charts which follow, including dropping the experience component from certified salaries in the instruction component. The system is comprised of (1) source sheets containing item price data by supplier (samples are in Figure VII.3); (2) summary of level 5 item prices organized according to the five PAB codes (Figure VII.4); (3) the computation sheet for calculating and cumulating weighted price relatives (Figure VII.5); (4) technique for calculating price movements by EPI subcomponents (Figure VII.6); (5) the 1979 and 1980 EPI summary report (Table VII.1).

FIGURE VII.2

The Revised Education Price Index, 1978 = 100.



LEVEL 1 · LEVEL 2 · LEVEL 3 · LEVEL 4 · LEVEL 5

- Instruction (.681)
  - Salaries (.943)
    - Certified (.881)
      - Full-time teachers
    - Uncertified (.119)
      - Secretary/stenographer
      - Receptionist
      - Clerk, general — intermediate
      - Clerk, beginning level
  - Services and Goods Purchased (.057)
    - Supplies (.579)
      - Pencils (.250)
        - HB, with eraser, "A" grade
        - HB, with eraser, "B" grade
        - Primary pencil
      - Ballpoint pens (.250)
        - Medium point stick
        - Fine point stick
      - Erasers (.250)
        - Pink eraser
      - Notebooks (.250)
        - 72-page exercise book
    - Textbooks (.224)
        - All school books
    - Media (.197)
      - Videotapes (.200)
        - ¾-inch
        - VHS
      - Audiotapes (.200)
        - C60-minute tapes
      - Projectors (.200)
        - Bell and Howell 1585-C
        - Bell and Howell 1592-C
      - VTR (.200)
        - VHS ½-inch; Panasonic
        - VHS ½-inch; RCA Victor
      - Film, NFB
        - ½-hour color NFB film

FIGURE VII.2 (continued)
The Revised Education Price Index, 1978 = 100.

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Administration (.049)	Salaries (.695)		Uncertified (.736)	Intermediate accountant
				Payroll clerk
				Accounting clerk/ senior bookkeeper
				Clerk-typist
			Certified (.264)	Full-time teachers
	Services Purchased (.250)		Travel and Subsistence (.300)	CPI, all items; average of Edmonton and Calgary
				CPI, transportation
			Natural gas (.372)	5148 mcf per year
			Electricity (.228)	195,353 kwh per year
			Telephone (.100)	1 black phone
	Supplies and Materials (.055)		Envelopes (.333)	No. 10, business size
			Paper (.333)	8½ x 11 white bond
				8½ x 14 white bond
			Typewriter balls (.333)	IBM prestige elite
Operations and Maintenance (.127)	Salaries (.575)		Janitors (1.00)	ABS male janitors, administration
	Services Purchased (.342)	Public Utilities (.833)	Electricity (.558)	195,353 kwh per year (average for average school)
			Natural gas (.342)	5148 mcf per year (average for average school)
			Water (.100)	22.7 cubic meters (minimum volume billed)

FIGURE VII.2 (continued)

The Revised Education Price Index, 1978 = 100.

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
		Repairs and Maintenance (.166)	Labor (.500)	Construction wage index, Prairies
			Materials (.500)	Non-residential input price index
	Supplies and Materials (.083)		Detergent Mops Wax (1.0) Soap	Index of soap and cleaning compounds
Transportation (.052)	Salaries (.519)		Bus drivers (1.00)	ABS, light truck drivers, public administration
	Services Purchased (.226)		Maintenance (.500)	ABS, automobile mechanic overall Foreman mechanic or service manager overall
			Repairs (.500)	Automobile operation component, CPI, Edmonotn
	Supplies and Materials (.255)		Gasoline (.500)	Motor gasoline index
			Grease (.250) Oil (.250)	Lubricating oil and grease index
Capital Outlay/ Debt Servicing/ Transfers (.091)	Debt Servicing (.803)		Interest rates (1.00)	Interest and principal payment ÷ outstanding debt
	Furniture and Fixtures (.197)		Desks (.333)	30 x 60 double pedestal 18 x 24 w/small box underneath
			Chairs (.333)	Swivel tilter on casters
			Filing cabinets (.333)	4-door legal size w/lock

FIGURE VII.3

Sample Source Sheets of Level 5 Prices for EPI, 1978 = 100.

EPI Source: Access Television South; Calgary, Alberta 283-8241

Item Code	Description	Price in Dollars			
		1978	1979	1980	1981
Inst. 16	Videotapes — VIIS — ½″ not Betamax	14.00	14.00	13.75	
Inst. 17	Audio cassette C 60 minute tapes	1.00	.75	.75	
Inst. 15	Videotapes ¾″	18.00	18.00	19.00	
Date of Pricing:		May	May	May	

Notes on Pricing Method Used:

1. Tenders on price accepted May 1 of each year. One price per year only.

EPI Source: Westcab Industries, Edmonton, Alberta 474-6461 (Fred Hartman)

Item Code	Description	Price in Dollars			
		1978	1979	1980	1981
Cap. 2	Desks — 30 x 60, 2 ped. metal interchangeable ped.	519	577	656	
Cap. 3	Desks — Student metal with box	34.50	37	42	
Cap. 4	Chairs — 39-15″ stacking	16.50	18.50	21.00	
Date of Pricing: Annual		July	July	July	

Notes on Pricing Method Used:

1. Westcab increases prices annually by inflation rate across the board.
2. Stacking chairs replace original proxy item.

EPI Source: Alberta Education, Data Processing Services, EPI Program on Computer, Edmonton, Alberta (Don Galloway)

Item Code	Description	Index Levels			
		1978	1979	1980	1981
Inst. 1	Certified salaries — Full-time teacher — All teachers	100.	108.33	117.89	
Adm. 5	Certified salaries — Teacher salaries — All teachers	100.	108.33	117.89	
Date of Pricing: February 23, 1981		Annually	Annually	Estimate	

Notes on Pricing Method Used:

1. Use "Base-Weighted Index for 1979 Average Salaries Provincially." EPI Program, computer printout at end of Zone Data.
2. January 23, 1981 — LaFleur to Hill — recent teacher salary settlement across Canada.

FIGURE VII.3 (continued)
Sample Source Sheets of Level 5 Prices for EPI, 1978 = 100.

EPI Source: Alberta Bureau of Statistics (Salary and Wage Survey), 10820 - 98 Avenue (7th Floor), Edmonton, Alberta 427-3058 (Liza Jackson)

Item Code	Description	Price in Dollars			
		1978	1979	1980	1981
Inst. 2	Uncertified salaries — Secretary/stenographer — #11, page 5, mean rate — Public Administratoin	Monthly Mean f 930.00	1,078.00	1,185.00	
Inst. 3	Uncertified salaries — Receptionist — #14, page 6, Public administration	f 739.00	822.00	960.00	
Inst. 4	Uncertified salaries — Clerk - General - Intermediate — #2, page 3 f — Public administration — f or n/a	f 903.00	976.00	1,012.00	
Inst. 5	Uncertified salaries — Clerk - Beginning level — #1, page 3 f, Public administration — f or n/a	f 699.00	780.00	875.00	
Adm. 1	Uncertified salaries — Intermediate accountant — #34, page 9 m, Public administration	m 1,632.00	1,692.00	1,780.00	
Adm. 2	Uncertified salaries — Payroll clerk — #4, page 3 — Public administration	f 938.00	1,010.00	1,035.00	
Adm. 3	Uncertified salaries — Accounting clerk/senior bookkeeper — #5, page 4 — Public administration	f 1,052.00	1,131.00	1,235.00	
Adm. 4	Uncertified salaries — Clerk-typist - Intermediate — #7, Public administration	f 766.00	887.00	976.00	
Trans. 1	Bus drivers — Light truck drivers — #88, pages 17-18, Public administration	1,123.00	1,193.00	1,288.00	
Trans. 2	Maintenance — Automobile Mechanic — #94, page 17 — Overall	1,472.00	1,619.00	1,840.00	
Trans. 3	Maintenance — Foreman, mechanic or service manager — #96, page 19 — Mean - Overall	1,649.00	1,823.00	1,970.00	
Opm. 1	Janitor — #67, page 14 m — Public administration	1,029.00	1,101.00	1,120.00	

Date of Pricing:

Notes on Pricing Method Used:

1. 1980 and future data include experience component and reclassification of levels of clerical and accounting tasks. There will be problems adjusting figures in 1981 to fit base year data. All salaries are mean salaries for the category.

FIGURE VII.4

EPI: Summary of EPI Item Prices

Level 5			Price in Dollars or Index Level			
Item Code	Description	Weight	Base Year 1978	1979	1980	1981
Inst. 1	Certified salaries — All teachers full-time	.5658	100.	108.33%	117.89%	
Inst. 2	Uncertified salaries — Secretary/Steno — Public Administration	.0191	930.	1,078.	1,185.	
Inst. 3	Uncertified salaries — Receptionist — Public Administration	.0191	739.	822.	960.	
Inst. 4	Uncertified salaries — Clerk — General Intermediate — Public Administration	.0191	903.	976.	1,012.	
Inst. 5	Uncertified salaries — Clerk Beginning — Public Administration	.0191	699.	780.	875.	
Inst. 6	HB pencil with eraser — A Grade Berol Mirado (10)	.0014	2.00	2.60	3.10	
Inst. 7	HB pencil with eraser — B Grade Faber Castil 6491 (10)	.0014	1.60	2.00	2.50	
Inst. 8	HB pencil with eraser — A Grade Berol Mirado (10)	.0014	2.00	2.60	3.10	
Inst. 9	HB pencil with eraser — B Grade Faber Castil (10)	.0014	1.60	2.00	2.50	
Inst. 10	Ballpoint pen — Bic medium point, stick (12)	.0029	3.00	3.48	3.48	
Inst. 11	Ballpoint pen — Bic medium point, stick	.0029	3.00	3.48	3.48	
Inst. 12	Erasers — Eberhard Pink Pearl (100-101)	.0056	—	—	—	
Inst. 13	Notebooks — 72-page exercise book — 5⁄16" lines (3 x 72)	.0056	.37	63	66	
Inst. 14	Textbooks — All texts listed (School Book Branch)	.0087	100.	109.1	118.6	
Inst. 15	Videotapes — ¾"	.0008	18.00	18.00	19.00	
Inst. 16	Videotapes — VIIS — ½" Not Beta-max	.0007	14.00	14.00	13.75	
Inst. 17	Audio cassette — C 60 minute tapes	.0015	1.00	.75	.75	
Inst. 18	Projector — Bell and Howell — 1592C self-threading	.0008	745.	795.	850.	920.
Inst. 20	Videotape recorders — VHS ½" 2 Hr. (NV-8310 Panasonic)	.0008	1,120.	1,160.	1,320.	1,600. 8320 New Model
Inst. 21	Videotape recorders — VHS ½" 2 Hr. RCA Vet. 250 (201)	.0008	1,150.	1,250.	1,287.	1,325.
Inst. 22	Film slides — 36 development	.0015	4.15	5.30	5.30	
Adm. 1	Uncertified salaries — Intermediate — Accountant — Public Administration	.0063	1,632.	1,692.	1,780.	
Adm. 2	Uncertified Salaries — Payroll Clerk — Public Administration	.0063	938.	1,010.	1,035.	
Adm. 3	Uncertified salaries — Accounting clerk senior Bookkeeper — Public Administration	.0063	1,052.	1,131.	1,235.	
Adm. 4	Uncertified salaries — Clerk-typist — Public Administration	.0063	766.	887.	976.	
Adm. 5	Certified salaries — Teacher salaries — All	.0090	100.%	108.33%	117.89%	
Adm. 6	Travel and Subsistence — CPI — All Items — Average of Edmonton/Calgary	.0018	176.9	191.95	210.75	
Adm. 7	Travel and subsistence — CPI total transportation Canada	.0018	163.3	178.3	202.2%	
Adm. 8	Natural gas — Cubic feet of gas rate — 4,148 mcf/year	.0046	6,256.16	6,215.66	6,429.72	
Adm. 9	Electricity — Average 40 KVA and rate/kwh	.0014	8.50 .0085	8.85 .0095	9.30 .01	

FIGURE VII.4 (continued)

EPI: Summary of EPI Item Prices

Level 5			Price in Dollars or Index Level			
Item Code	Description	Weight	Base Year 1978	1979	1980	1981
Adm. 10	Electricity — 50 KVA and rate/kwh	.0014	859.55	859.55	963.44	
Adm. 11	Telephone — Monthly rate for black phone off switch board	.0006	3.50	3.50	3.50	3.50
Adm. 12	Telephone — Exchange base for rate — MR for black phone	.0006	Westlock:			
			14.05	14.05	14.05	14.05
			General:			
			2.85	2.85	2.85	2.85
			Peace River:			
			12.40	12.40	12.40	12.40
Adm. 13	Envelopes — #10 business size	.0008	12.33	13.56	15.23	17.65
Adm. 14	Paper — 8½ × 11 — 20 lb. bond white (1,000)	.0004	4.95	5.13	5.83	
Adm. 15	Paper — 8½ × 14 — 20 lb. white bond	.0004	7.25	8.05	8.93	10.49
Adm. 16	Typewriter balls — IBM, prestige elite (1)	.0009	22.50	24.50	24.50	
Opm. 1	Janitors — janitor adm.	.0730	1,029.	1,101.	1,120.	
Opm. 2	Electricity — 40 KVA and rate/kwh	.0101	859.55	859.55	963.44	
Opm. 3	Electricity — 40 KVA and rate/kwh	.0101	8.50	8.85	9.30	
			.0085	.0095	.01	
Opm. 4	Natural gas — Cubic feet of gas, 5148 mcf	.0125	6,256.16	6,215.66	6,429.72	
Opm. 5	Water — Cubic meters of water, 22.7 cubic meters	.0036	8.17	8.81	9.85	
Opm. 6	Labor — Construction wage index, prairies	.0036	226.5	242.8	263.4	
Opm. 7	Materials — Non-residential input price index	.0036	180.4	210.0	219.8	
Opm. 8	Detergent, soap, wax, mops — Industry index Canada	.0105	154.2	172.8	189.9	
Trans. 1	Bus drivers — Light truck drivers — Public administration	.0270	1,123.	1,193.	1,288.	
Trans. 2	Maintenance salaries — Auto mechanic overall	.0030	1,472.	1,619.	1,840.	
Trans. 3	Maintenance salaries — Foreman mechanic/service manager overall	.0029	1,649.	1,823.	1,970.	
Trans. 4	Repairs — Auto-truck component — CPI — Edmonton	.0059	138.8	148.9	168.6	
Trans. 5	Gasoline — for auto and truck — CPI Canada	.0066	179.7	198.5	238.8	
Trans. 6	Grease and oil — Automobile repairs — CPI Canada	.0066	193.4	211.0	236.0	
Cap. 1	Interest rates — All schools int./debt plus parts on prin. — New debentures	.0730	107.759%	107.856%	107.915%	
Cap. 2	Desks — 30 × 60 ped. metal with Arborite top	.0030	519.	577.	656.	
Cap. 3	Desks — 18 × 24 — Student with box	.0030	34.5	37.	42.	
Cap. 4	Chairs — 15″ stacking chairs	.0060	16.5	18.5	21.	
Cap. 5	Filing cabinets — 4 door legal size	.0060	125.	139.	160.	

FIGURE VII.5

EPI Calculation of Price Relatives

1	2	3	4	5	6	7
Code	1980 Price	Base Year Price 1978	Increase From The Base Year 4 = (2 − 3) ÷ 3 + 1 (% price change)	Weight	Weighted Price Relative 6 = 4 × 5	Cumulative Weighted Price Relative
Inst. 1	117.89	100.	1.1789	.5658	.66702162	.66702162
Inst. 2	1,185.	930.	1.2741935	.0191	.024337	.69135852
Inst. 3	960.	739.	1.2990527	.0191	.025812	.71717062
Inst. 4	1,012.	903.	1.1207087	.0191	.021405	.73857562
Inst. 5	875.	699.	1.2517883	.0191	.023909	.76248462
Inst. 6	3.10	2.00	1.55	.0014	.00217	.76465462
Inst. 7	2.50	1.60	1.5625	.0014	.002188	.76684262
Inst. 8	3.10	2.00	1.55	.0014	.00217	.76901262
Inst. 9	2.50	1.60	1.5625	.0014	.002188	.77120062
Inst. 10	3.48	3.00	1.16	.0028	.003248	.77444862
Inst. 11	3.48	3.00	1.16	.0028	.003248	.77769662
Inst. 12	—	—	1.00	.0056	.0056	.78329662
Inst. 13	.66	.37	1.783784	.0056	.0099892	.79328582
Inst. 14	118.6	100.	1.186	.0087	.0103182	.80360402
Inst. 15	19.00	18.00	1.055556	.0008	.0008445	.80444852
Inst. 16	13.75	14.00	.982143	.0007	.001473	.80592152
Inst. 17	.75	1.00	.75	.0015	.001125	.80704652
Inst. 18	850.	745.	1.140939	.0008	.0009128	.80795932
Inst. 20	1,320.	1,120.	1.1785714	.0008	.0009429	.80890222
Inst. 21	1,287.	1,150.	1.11913	.0008	.0008953	.80979752

FIGURE VII.5 (continued)
EPI Calculation of Price Relatives

1	2	3	4	5	6	7
Code	1980 Price	Base Year Price 1978	Increase From The Base Year 4= (2 − 3) ÷ 3 + 1 (% price change)	Weight	Weighted Price Relative 6 = 4 × 5	Cumulative Weighted Price Relative
Inst. 22	5.30	4.15	1.277108	.0015	.001916	.81171352
Adm. 1	1,780.	1,632.	1.090686	.0063	.006871	.81858452
Adm. 2	1,035.	938.	1.1034115	.0063	.006951	.82553552
Adm. 3	1,235.	1,052.	1.173954	.0063	.007396	.83293152
Adm. 4	976.	766.	1.274151	.0063	.008027	.84095852
Adm. 5	117.89%	100.	1.1789	.0090	.0106101	.85156862
Adm. 6	210.75	176.9	1.191351	.0018	.0021443	.85371292
Adm. 7	202.2	163.3	1.238212	.0018	.002229	.85594192
Adm. 8	6,429.72	6,256.16	1.027742	.0046	.0047276	.86066952
Adm. 9	9.30	8.50	1.094117	.0014	.0015894	.86225892
	.01	.0085	1.176471			
			1.135294 (÷2)			
Adm. 10	963.44	859.55	1.120866	.0014	.0015692	.86382812
Adm. 11	3.50	3.50	1.00	.0006	.0006	.86442812
Adm. 12	14.05	14.05	1.00	.0006	.0006	.86502812
	2.85	2.85				
	12.40	12.40				
Adm. 13	15.23	12.33	1.235199	.0008	.0009882	.86601632
Adm. 14	5.83	4.95	1.177778	.0004	.0004711	.86648742
Adm. 15	8.93	7.25	1.231724	.0004	.0004927	.86698012
Adm. 16	24.50	22.50	1.088889	.0009	.00098	.86796012
Opm. 1	1,120.	1,029.	1.088435	.0730	.079456	.94741612

FIGURE VII.5 (continued)
EIP Calculation of Price Relatives

1	2	3	4	5	6	7
Code	1980 Price	Base Year Price 1978	Increase From The Base Year 4 = (2 − 3) ÷ 3 + 1 (% price change)	Weight	Weighted Price Relative 6 = 4 × 5	Cumulative Weighted Price Relative
Opm. 2	963.44	859.55	1.120866	.0101	.0113207	.95873682
Opm. 3	9.30	8.50	1.09412	.0101	.0114665	.97020332
	.01	.0085	1.135294			
			2			
Opm. 4	6,429.12	6,256.16	1.027742	.0125	.0128468	.98305012
Opm. 5	9.85	8.17	1.20563	.0036	.004340	.98739012
Opm. 6	263.4	226.5	1.162914	.0036	.0041865	.99157662
Opm. 7	219.8	180.4	1.218404	.0336	.0043862	.99596282
Opm. 8	189.9	154.2	1.231517	.0105	.0129309	1.00889372
Trans. 1	1,288.	1,123.	1.14693	.0270	.03097	1.03986372
Trans. 2	1,840.	1,472.	1.25	.0030	.00375	1.04361372
Trans. 3	1,970.	1,649.	1.19467	.0029	.003465	1.04707872
Trans. 4	168.6	138.8	1.214697	.0059	.0071667	1.05424542
Trans. 5	238.8	179.7	1.328881	.0066	.0087706	1.06301602
Trans. 6	236.0	193.4	1.220269	.0066	.008053	1.07106902
Cap. 1	107.915%	107.759%	1.00145	.0730	.07310585	1.14417487
Cap. 2	656.	519.	1.26397	.0030	.003792	1.14796687
Cap. 3	42.	34.5	1.21739	.0030	.00365	1.15161867
Cap. 4	21.	16.5	1.27273	.0060	.00764	1.15161687
Cap. 5	160.	125.	1.28	.0060	.00768	1.16693687
						= 1980 EPI
						1.08035207
						= 1979 EPI

FIGURE VII.6

Calculation of Price Movements by
EPI Subcomponents

Instruction: Use Cumulative Weighted Price Relative summed at Inst. 22 for each year. 1980 = .81171352

Administration: Use Cumulative Weighted Price Relative summed at Admin. 16. Subtract summed Weighted Price Relative at Inst. 22. This gives the sum of Weighted Price Relatives for Administration.

	1980
Admin. 16	.86796012
Inst. 22	.81171352
	.0562466

Operations and Maintenance: Use Cumulative Weighted Price Relative summed at Opm. 8. Subtract summed Weighted Price Relatives at Admin. 16.

	1980
Opm. 8	1.00889372
Admin. 16	.86796012
	.1409336

Transportation: Use Cumulative Weighted Price Relative summed at Trans. 6. Subtract summed Weighted Price Relatives at Opm. 8.

	1980
Trans. 6	1.07106902
Opm. 8	1.00889372
	.0621753

Capital Outlay/Debt Servicing: Use Cumulative Weighted Price Relative summed at Cap. 5. Subtract summed Weighted Price Relatives at Trans. 6.

	1980
Cap. 5	1.16693687
Trans. 6	1.07106902
	.09586785

TABLE VII.1

Summary Report of Level 1 Price Movements, Alberta Education Price Index and Sub-Indices

Level 1 Category	1978 Base Year Weights	1979 Weighted Price Relative		1979 % Increase over Base Year (with EPI)		1980 Weighted Price Relative		1980 % Increase over Base Year (with EPI)		Year-to-Year % Change	
										78-79	79-80
EPI	**1.00**	**1.08**	**(100%)**	**8.00**	**(108)**	**1.167**	**(100%)**	**16.7%**	**(116.7)**	**8%**	**8.05%**
Instruction	0.681	.744	(68.89%)	9.25	(109.25)	.812	(69.58%)	19.24	(119.24)	9.25%	9.14%
Administration	0.049	.052	(4.81%)	6.1	(106.1)	.056	(4.80%)	14.3	(114.3)	6.10%	7.69%
Operations and Maintenance	0.127	.135	(12.5%)	6.3	(106.3)	.141	(12.08%)	11.0	(110.0)	6.30%	4.44%
Transportation	0.052	.056	(5.19%)	7.7	(107.7)	.062	(5.31%)	19.2	(119.2)	7.70%	10.7%
Capital Outlay	0.091	.093	(8.61%)	2.2	(102.2)	.096	(8.23%)	5.5	(105.5)	2.20%	3.22%

Take the sum of Price Relatives in Level 1 Category, divide by corresponding Level 1 weight of Base Year, and multiply by 100. View each Base Year category as an individual index of 100 for interpreting percentages.

CHAPTER VIII

ENROLMENT PROJECTIONS SYSTEM

D.W. Ellis & Associates; St. Albert, Alberta; 1981

This chapter briefly summarizes an extensive project, conducted over a period of nine months, to date.

I. INTRODUCTION

Province-wide formal enrolment projections have traditionally been prepared by Alberta Education at least once a year as a basis for its annual budget request to Alberta Treasury. Until recently, these projections have not been made generally available to Alberta school systems, but have been used for the internal planning purposes of the Department. Also, early projections were restricted to grade-level estimates one year into the future. Recent efforts, notably in 1978, have produced grade-by-grade estimates using a 10-year forecast period.

Today, it is increasingly apparent that regularly-published estimates of future province-wide and school system enrolments would provide valuable assistance to local school systems in planning their school programs.

The New School Construction Planning and Funding Policy was introduced by the provincial government in January 1979. In order to qualify for some of the $500 million in provincial aid to be allocated over the coming five years, school boards are required to prepare and submit three-year capital budgets. Local school system planners will need up-to-date reliable enrolment projections at both the school system and regional levels.

The task for any one school system is complicated by the uncertainty surrounding the general and specific effects of future Alberta economic growth. While some school sytems in Alberta will continue to experience decreases in pupil populations into the foreseeable future, neighboring school systems face dramatic increases in enrolment due to local or regional large-scale industrial development. As well, the timing of such development is often difficult to predict, given lengthy government approval processes and the volatility of national and international markets.

The Planning and Research Branch of Alberta Education recently acknowledged the growing importance of local school district strategic and program planning by designating "the enhancement of the local school system's capacity to plan" as a priority research area. Enrolment projection and forecasting are viewed as logical components of local planning.

II. SPECIFIC OBJECTIVES

The enrolment projection activities of the Stage 1 financial studies were dedicated to developing within Alberta Education a computer-based capability to annually project student enrolments at the provincial and jurisdictional levels by grade level and division (ECS, elementary, junior high, senior high) for a 10-year forecast period.

Specifically, these activities were intended to:

- prepare enrolment projections for all Alberta school jurisdictions by grade level, division, and in total for a 10-year forecast period;
- refine the projection methodology and data base used for projections on an ongoing basis;
- develop appropriate computer systems to update and refine projections on an annual basis.

III. METHODS REVIEWED

A study by D. W. Ellis & Associates produced the basic computer projection model. The firm examined many enrolment projection techniques and selected four as suitable and capable of accurate total Alberta projections. In some form, each technique handles the following important features:

- population growth; general participation and beginner participation into ECS and grade 1;
- external migration; each year the migration increases to population and enrolment become more significant;
- pass/fail/progression rates; the enrolment progressions are duplicated using these rates;
- age/grade enrolment distributions.

The four techniques follow.

A. Age Progression Method

The present enrolment by age is advanced one year using progression ratios empirically determined. Beginner enrolment is determined from population projections and participation rates. Migration is added to complete the enrolment projection. Age/grade distributions are applied to obtain age/grade enrolments.

B. Grade Progression Method

The present enrolment by grade is advanced one year using progression ratios empirically determined. Beginner enrolment is determined from population projections and participation rates. Migration is added to complete the projection. Age/grade distributions are applied to obtain age/grade enrolments.

C. Participation Rate Method

Participation rates are applied to population projections to obtain age/grade enrolments.

D. Cohort Simulation Method

The present age/grade enrolment is advanced one year using pass/fail rates. Beginner enrolment is determined from population projections and participation rates. Migration is added to complete the projections.

IV. ACHIEVEMENTS TO DATE

For this study, the Cohort Simulation Method projection was selected. The population projection used was based on low fertility and migration assumed to increase to 1984 and decline thereafter.

For census division and jurisdiction projections, the Cohort Simulation Method was used because it uses the existing age/grade enrolment as a basis for the projection. It is enhanced to include the following features:

- — external migration distributed among the census divisions;
- — internal migration — population shifts within Alberta;
- — beginner participation rates by census division;
- — jurisdiction share of ECS and grade 1;
- — jurisdiction growth rates.

The enhancements permit the particular census division or jurisdiction trends and activities to be reflected in the projections.

The study produced volumes of computer output on provincial census division and local enrolment projections based on the enhanced cohort simulation model.

V. CURRENT ACTIVITIES

A review of the results of the study indicated a need to further refine the projection methodology and the data bases used in developing the projections at the provincial and jurisdictional level. The methodological refinements identified included the need to first develop a provincial level enrolment forecast by age, sex and grade level as the basis for developing jurisdictional level projections, and to account for differential jurisdictional growth and decline rates. In addition, it was recognized that there are essentially three population groups involved, each subject to different constraints regarding their participation in basic education:

- — Early Childhood — constraints on enrolment are primarily the provision of service, and secondly the available population;
- — ages 6 - 14 — due to legal requirements for school attendance, constraints on enrolment are solely due to population;
- — ages 15 and above — constraints on this group are seen as the most complex, but involve the desire for and availability of work, the desire for post-secondary education, and population.

In order to address these methodological needs, two specific data base additions are required: one to deal specifically with Alberta's economic climate, availability of jobs, labor force activity of 15 to 19 year olds, unemployment rate, and indicators of future economic activity in Alberta; the other to deal more specifically with the population impact of changes in Alberta's economic climate through the development of specific external migration, sex and age data, and the refinement of the jurisdiction level population base estimates. This last activity required the development of jurisdiction-level postal code aggregates and the examination and analysis of existing government data files.

At present, the development of the required data bases is underway as is the analysis of the current computer enrolment projection systems. Preliminary projection results, based on these refinements, should be available in fall 1981. These preliminary results will be used as the basis for future refinement of the enrolment projection methodology and data bases.

CHAPTER IX

MEASURING THE SCOPE AND DEPTH OF ALBERTA SCHOOL PROGRAMS

Lloyd E. Symyrozum

Following is a brief summary of the study. Construction and use of the District Program Index described below was part of a larger doctoral dissertation study relating 32 "predictor variables" (such as demographic, wealth, revenue, and expenditure variables) to variations in extent of curricular programs offered by different school systems.

I. INTRODUCTION

Before judgments can be made about the presence or absence of fiscal equality under a particular set of school finance arrangements, school systems revenue and expenditure data need to be standardized to account for differences in input prices, costs, values, and quality. This standardization must extend to some common basis for describing the scope (breadth of subjects taught) and depth (number of subprograms including courses) of school curricular programs so that the expenses of offering these may be compared across school jurisdictions. The 1975 MACSF had noted the lack of information on whether financial efforts designed to enable all jurisdictions to offer a wide variety of programs within the provincial curriculum had succeeded. Mindful of this concern, the researcher for the present project provided a means for describing curricular program levels in Alberta school systems, for making system-to-system comparisons, and for comparing a system with the provincial whole.

The present project focused on developing a statistical measure for comparing interjurisdictional differences in the extent of subject areas offered and the number of subprograms or courses offered within each subject area. The resulting "comparability index" might be useful in adjusting expenditure data to enable more accurate testing for the presence of fiscal equalization.

The researcher developed a jurisdictional program index, identified as a District Program Index (DPI), assembled and calculated according to the procedures and considerations below.

All curricular programs offered in Alberta elementary, junior, and senior high schools must be approved by the Minister of Education regardless of the origin of the program. There is considerable variation in the degree of content specified for the individual required and elective subjects and courses, and there is variation also in the amount of scheduled instructional time (teaching and other scheduled activities). The variation is most evident at the elementary level and least at the senior high school course level. Elementary programs have a broadly specified required content for core subject areas, but no specific time requirements are prescribed. Junior high school subject areas have specified minimum time requirements, but vary greatly regarding the degree to which content is specified. At the senior high level, content is generally specified in more detail than elsewhere, and time requirements are expressly defined in terms of specific courses rather than broad subject areas. Each course has a credit value, normally but not exclusively based on the principle of one credit awarded for each 25 hours of scheduled instructional time (teaching time and other scheduled classroom activities).

Before the present study, reports on the Alberta curricular program dealt with some specific level of schooling, such as senior high school, or with conditions in only some schools and jurisdictions, usually on a sampling basis. There was no province-wide study of curricular programs offered in all schools. However, school evaluation reports filed by Departmental consultants referred to various subjects taught in individual schools, and some interschool comparisons of program levels with respect to subjects taught, number of courses offered and instructional time scheduled within separate subject areas were available.

The Department had also for some time utilized a reporting form, Form A, for collecting school level information on junior and senior high school program offerings. In 1978-79 a new, revised Form B was developed for the Department by L. E. Symyrozum and used for recording elementary school program offerings, including instructional time assigned for each major subject area.

II. DISTRICT PROGRAM INDEX

Commentors on education normally assume that the total instructional time in a subject is important to student learning. Additionally, student access to curricular programs has traditionally been viewed as a prerequisite to enhancing equality of educational opportunity, a view reinforced by the 1975 MACSF. Following these leads, the researcher for the scope/depth study decided to develop a common measure of all grades 1-12 school program offerings in Alberta. The resulting District Program Index (DPI) provides a uniform description of each school jurisdiction's average scheduled instructional time offerings, subject area by subject area, grade by grade. The researcher extracted school program data from Form A and B reports submitted by local school authorities for the 1978-79 school year. To aggregate uniformly and compare the data at the elementary, junior, and senior levels, the school jurisdictional program index (or DPI) took into account the enrolment in each grade at each school within a jurisdiction, and the amount of instructional time (expressed in credit equivalents of one credit per 25 hours instructional time, although such credits are actually awarded only at the senior high school level) devoted to each major subject area under which courses are grouped in Departmental manuals on school program. School jurisdiction program indices (or DPIs) were calculated for each of 121 school systems (out of a total of 176) which had supplied complete Form A and B data.

In its most general form, a DPI may be expressed in mathematical terms as follows:

$$DPI = \sum_{s=1}^{n} \sum_{c=1}^{m} \frac{T_{SC} E_S}{\sum_{s=1}^{n} E_S}$$

Where E_S = enrolment for grade under consideration in school s
T_{SC} = scheduled instructional time for course c in school s
n = number of schools in district
m = number of courses in subject area

To compute the DPI for language arts at the elementary level, for example, the DPI for language arts at each of the elementary grade levels were determined and then added together. To arrive at the DPI for an individual grade level, the separate DPIs calculated for each of the major subject areas offered at that grade level were added together.

The DPI for a jurisdiction is based on the aggregation of all course loads (enrolment x number of instructional hours) for a given subject area across all schools within the jurisdiction. This aggregate course load is then divided by the total number of students enroled in that particular grade level in the jurisdiction to develop an estimate of instructional hours that can be translated into a credit equivalent for the jurisdiction as a whole.

III. SUBJECT AREA GROUPINGS

The major subject area groupings selected for the study were in accordance with those outlined in the Junior-Senior High School Handbook (1978-79) issued under the authority of the Minister of Education pursuant to Section 12 of the *The School Act (1970)*. The grade levels for which each of these subject area groupings were applicable are in Table IX.1.

Two examples of DPIs for individual school jurisdictions are displayed in Tables IX.2 and IX.3. It is important to stress that the researcher's procedure was to compile and analyze Form A and Form B school system program information, converting instructional time into credit equivalents for each school in a jurisdiction, and adding and averaging this information for each jurisdiction as a whole through a formula which included weighting for differences in enrolment between schools. The results are reported by grade level for each school system and for the province as a whole, on the basis of the several "credit" offerings within each of the broad subject areas and for the curricular program in its entirety. Thus the DPI, although compiled from information on the scope or breadth of subject offerings and the depth or number of subprograms or courses within a

TABLE IX.1

Grade Levels for Subject Area Groupings

Subject Area	Grades Applicable	Reporting Categories
Language Arts	1-12	12
Mathematics	1-12	12
Social Studies	1-12	12
Science	1-12	12
Personal Development	1-12	12
Fine Arts	1-12	12
Second Languages	1-12	12
Business Education	7-12	6
Home Economics	7-12	6
Industrial Ed. (General)	7-12	6
Industrial Ed. (Vocational)	10-12	3
Other — one per grade	1-12	12
		117

subject at a particular grade level in an individual school, is expressed in terms of:

- average program offerings in a school jurisdiction at a grade level and in a subject area (even at the senior high school level the DPI does not identify a course as such but deals in the credit offering in broad subject areas);
- summative information on total average offerings across all subject areas and grade levels in a jurisdiction, and a grand total average credit offering;
- summative information at the provincial level to determine provincial average offerings across grades and subject areas and as a grand total average credit offering (Table IX.4).

Wide variations in offerings at specific grade levels and in specific subjects from school to school within a jurisdiction are not captured in the index since the index averages the program offerings across subjects and grades. However, the index enables identification of the variation in average offerings between jurisdictions. Since the primary agency which Alberta Education deals with is the school jurisdiction rather than the individual school, the DPI provided information more immediate to Departmental purposes than school to school program variation within a jurisdiction. However, if needed, school to school information can be obtained from the source data — the Form A and B information — and can be corrected for grade enrolment within a school to provide intrajurisdictional comparisons.

IV. IMPLICATIONS

The study has several implications for future efforts in monitoring and planning curricular programs and financial support to school systems.

A. Monitoring Changes in District Program Levels

A major concern in the development and study of school finance plans has been the provision of equal educational opportunity. Researchers have tended to assume that demonstration of close adherence to the principle of fiscal equalization can be taken as an indication also of equality of student access to programs and services. Equal access to education has been taken to mean that students must be provided with a minimum level of resources, usually termed a foundation level, to ensure equality of educational opportunity. The major difficulty continues to be that there is no way of knowing how much education is minimally necessary.

Up to the present time, no studies have been found in which an attempt was made to describe the nature and extent of variation in major curricular programs offered, grades 1 through 12, among local school

TABLE IX.2

Alberta School Jurisdictional Program Indices Expressed in Credit Equivalent, Jurisdiction 1010.

	Language Arts	Math	Social Studies	Science	Personal Develop.	Fine Arts	Second Languages	Business Educ.	Home Econ.	Indust. Educ.	Voc. Educ.	Other	Total
Grade 1	20.25	5.00	3.03	2.89	3.79	2.69	0.0					0.0	37.64
Grade 2	20.61	5.00	3.06	2.77	3.70	2.64	0.0					0.0	37.78
Grade 3	19.08	5.43	3.73	2.76	3.85	2.85	0.0					0.0	37.69
Grade 4	16.74	6.12	3.73	3.59	4.71	3.00	0.0					0.0	37.88
Grade 5	15.97	6.38	3.84	3.75	5.16	2.91	0.0					0.0	38.00
Grade 6	15.64	6.52	3.66	4.05	5.34	2.94	0.0					0.0	38.15
Elem.	108.29	34.45	21.05	19.80	26.55	17.02	0.0					0.0	227.15
Grade 7	9.60	6.43	6.43	5.41	7.49	3.33	0.0	1.20	0.0	0.0		0.0	39.89
Grade 8	9.60	6.54	6.54	5.37	6.74	3.31	0.0	1.03	0.0	0.0		0.0	39.14
Grade 9	11.11	5.03	5.03	5.37	5.20	1.03	0.0	3.31	0.0	0.0		0.0	36.09
J.H.S.	30.31	18.00	18.00	16.16	19.44	7.68	0.0	5.54	0.0	0.0		0.0	115.12
Grade 10	5.00	5.00	5.00	9.00	4.00	6.00	0.0	6.00	0.0	0.0	0.0	5.00	45.00
Grade 11	5.00	5.00	11.00	9.00	2.00	6.00	0.0	5.00	0.0	0.0	0.0	5.00	48.00
Grade 12	5.00	5.00	5.00	10.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.00	30.00
S.H.S.	15.00	15.00	21.00	28.00	6.00	12.00	0.0	11.00	0.0	0.0	0.0	15.00	123.00
Total	153.60	67.45	60.04	63.95	51.98	36.70	0.0	16.54	0.0	0.0	0.0	15.00	465.27

districts. A major contribution of the present study was the development of a District Program Index (DPI) which could be applied on a province-wide basis to monitor changes in district program levels from year to year. Degree of fiscal equalization need no longer be taken as a proxy demonstration of access to programs.

B. Explaining Variation in District Program Levels

The study reports that a combination of four variables (out of 32 statistically analyzed) accounts for approximately one half of the variance noted in the total instructional time provided in the major subject areas in grades 1-12. In this first round of analysis the four variables accounting for the greatest amount of variance in jurisdictional program offerings are jurisdiction type, senior high enrolment, per pupil expenditure for transportation, and ratio of SGR grants received to total operational revenue. The implications which each of these variables seems to have for school finance are discussed below.

1. JURISDICTION TYPE

In general, public school districts provided more extensive curricular program offerings at each grade level than did separate school districts. From the data analyzed in this study, it was apparent that generally, separate school districts have a smaller number of students as well as a smaller local property taxation base. Further consideration might be given to special means to counteract the negative effects associated

TABLE IX.3

Alberta School Jurisdictional Program Indices Expressed in Credit Equivalent, Jurisdiction 3070.

	Language Arts	Math	Social Studies	Science	Personal Develop.	Fine Arts	Second Languages	Business Educ.	Home Econ.	Indust. Educ.	Voc. Educ.	Other	Total
Grade 1	14.08	5.38	2.55	2.14	3.39	3.20	0.03					1.03	31.80
Grade 2	16.72	6.86	3.35	2.83	3.27	3.21	0.05					1.29	37.58
Grade 3	16.15	6.18	3.47	2.79	3.94	3.47	0.26					1.18	37.43
Grade 4	13.36	5.93	3.98	3.73	3.33	3.55	1.98					1.39	37.26
Grade 5	13.18	6.25	4.17	3.75	3.51	3.56	2.21					1.30	37.93
Grade 6	13.27	6.15	4.06	3.73	3.11	3.18	1.91					1.28	36.70
Elem.	86.76	36.76	21.58	18.97	20.54	20.16	6.44					7.47	218.70
Grade 7	12.32	6.66	5.24	4.36	6.13	9.13	3.15	0.0	2.30	2.30		0.0	51.60
Grade 8	10.92	7.42	6.05	6.46	7.62	10.73	2.48	0.0	2.72	2.72		0.0	57.11
Grade 9	10.63	8.69	11.80	7.05	7.25	8.02	3.15	2.68	2.83	2.83		0.0	64.93
J.H.S.	33.87	22.77	23.09	17.86	21.01	27.87	8.78	2.68	7.86	7.86		0.0	173.64
Grade 10	13.00	15.00	5.00	12.00	8.00	20.00	15.00	14.00	10.00	0.0	50.00	5.00	167.00
Grade 11	22.00	15.00	23.00	9.00	5.00	20.00	15.00	34.00	10.00	0.0	140.00	10.00	303.00
Grade 12	10.00	15.00	17.00	15.00	5.00	20.00	15.00	35.00	10.00	0.0	150.00	10.00	302.00
S.H.S.	45.00	45.00	45.00	36.00	18.00	60.00	34.00	83.00	30.00	0.0	340.00	25.00	772.00
Total	165.63	104.53	89.67	72.84	59.55	108.04	60.23	85.68	37.86	7.86	340.00	32.47	1164.34

with low enrolments and low taxation bases in smaller, usually separate, school jurisdictions.

2. SENIOR HIGH ENROLMENT

Generally, districts with a large number of senior high students were able to provide more extensive curricular program offerings in grades 1-12. Under the Alberta School Foundation Program, instructional grants are paid on a weighted per pupil basis for each elementary, junior high, and senior high pupil. Reducing curricular program disparities might require additional funding for senior high students where their enrolment tends to be low.

3. TRANSPORTATION ALLOWANCES

Generally, where per pupil expenditure for transportation is low, the overall DPIs at all three school levels tend to be higher. Greater equalization of curricular program levels among districts might require additional allowances for transportation.

4. SGR GRANTS PROVIDED

The overall DPI for grades 1-12, as well as the DPIs for several subject areas at each of the three school levels, tended to be higher if the ratio of SGR grants received to total operational revenue were low. In 1978, the average ratio of SGR grants to SFPF grants collected by local school jurisdictions was 1:13. Compensatory components of the SGR grants (i.e., provisions for equalizing supplementary requisitions and declining enrolments) were not isolated for examina-

TABLE IX.4

Average Provincial Subject Offerings across Grades and Variation of DPIs for the Total Instructional Time Provided in Major Subject Areas in Grades 1 Through 12

Major Subject Areas	Grades Applicable	Percentage of Total Program	DPI Mean	DPI Standard Deviations
Language Arts	1-12	24.50	151.15	23.91
Mathematics	1-12	13.23	81.64	19.18
Social Studies	1-12	10.79	66.56	14.22
Science	1-12	10.28	63.40	19.09
Personal Development	1-12	9.30	57.36	11.14
Fine Arts	1-12	8.61	53.13	27.39
Second Languages	1-12	3.86	23.84	15.96
Business Education	7-12	5.66	34.95	22.89
Home Economics	7-12	2.77	17.07	14.33
Industrial Education (General)	7-12	2.17	13.36	11.13
Industrial Education (Vocational)	10-12	4.40	27.16	66.53
Other Subject Areas	1-12	4.8	27.37	13.74
Total Program	1-12	100.00	617.00	191.02

tion in the study, but a separate analysis could be made of their effects on district program levels. Nearly 25% of the total SGR grants paid in 1978 were of a compensatory nature.

C. Reclassifying the Provincial Grant Structure

Consideration might be given to reclassifying the total provincial grant structure into three major components: general purpose grants, special purpose or categorical grants, and compensatory grants. This restructuring might present a clearer picture of the provincial grants-in-aid program in force from year to year, and might assist in comparative studies of the impacts of the finance program.

V. FURTHER RESEARCH

The following areas might be suitable topics for further research:

— While fiscal equalization remains a desirable objective, it is doubtful that its achievement necessarily removes interjurisdiction disparities with regard to curricular programs offered. In fact, a movement toward further equalization of school system program levels could result in more noted incidences of fiscal inequality. This anomaly should be more fully explored to study its implications.

— Time series analyses should be undertaken to assess the impact of any policy changes made as a result of studies like the present one.

— The present study did not include consideration of specialized programs provided at the local level for learning disabled, handicapped and disadvantaged students. As the resources necessary to implement such programs have direct bearing on available district revenues, further study should be made of the impact of these programs on major curricular programs offered to regular students.

— One impediment to extended research in school finance is the unavailability of an appropriate data base from which needed information may be drawn. In this regard, further study should be made of means to regularize the reporting function of school jurisdictions to the Alberta Department of Education with regard to programs and services provided to elementary and secondary students.

REFERENCE

Symyrozum, Lloyd E.

1981 "A Study of the Relationship between Educational Program Levels in Alberta School Systems and Selected Measures of Fiscal and Non-Fiscal Variables". Unpublished doctoral dissertation, The University of Alberta, Edmonton, Alberta.

In addition to information in the dissertation, Dr. Symyrozum produced a series of computer reports relative to the DPI.

CHAPTER X

SCHOOL FINANCE COMPUTER MODEL

Peat, Marwick and Partners; Edmonton, Alberta; 1981

The following chapter is a very brief description of the detailed nine-month development of a financial simulation model.

The Stage 1 series of projects designed to produce new and better analytic techniques for exploring the probable consequences of modifications to the detailed grant provisions or of selecting alternative school finance plans included addressing the departmental need for a computerized financial planning tool. This planning tool, the Alberta School Finance Model, is intended to provide an effective means to assess the short- and long-term impact of specific grant or policy changes at a jurisdictional and provincial level.

While the capacity to examine the specific effects of minor changes to grant provisions existed within Alberta Education on a manual level, there was no existing ready means for examining the partial or global local school board revenue and expenditure effects, or the provincial budgetary impact, of changes to the regulations for the more than 40 provincial grants currently provided to local school jurisdictions. In addition, there was no available means for exploring the probable fiscal impact of fundamental changes to the Alberta school finance plan. The complexity of a detailed examination of the impact on each of over 175 Alberta school boards receiving provincial funds across a spectrum of over 40 discrete grant formulae involving in excess of $700 million was far beyond the capacity of the existing manual approach to deal with in a timely and efficient manner. The result of continuing the manual approach was judged to be a critical limitation on the capacity of the current Ministerial Task Force to examine school financing alternatives in detail.

The Alberta School Finance Model was developed specifically to help assess the impact at the local school board level of any proposed changes to Alberta school finance policy. The model was designed to assist policy makers in selecting among a variety of alternatives by summarizing the impact on local revenues, expenditures, requisitions and requisition rates, and providing total dollar cost implications of each alternative for the province.

The model developed by Peat, Marwick and Partners, in conjunction with Alberta Education personnel, accessed departmental data currently stored in both manual and computer form. At present, the detailed software and data bases for the 1977, 1978 and 1979 years are undergoing testing and refinement. It is anticipated that by Fall 1981, the model will be fully operational and provide the capacity to simulate the effects of most policy changes relating to funding at the provincial level and individual school jurisdictional level for all current grants, as well as those that may be proposed.

The following three figures provide an overview of the systematic approach used in the Alberta School Finance Model. A critical feature of the model is the "man-machine" boundary which defines the need to formulate general policy statements into their mathematical equivalents. The model *per se* does not analyze policy alternatives; it merely interprets the impact of the policy statements based on the mathematical formulation of each alternative. For this reason, in order to maximize the usefulness of the model as a financial planning tool, it is necessary to pose specific policy alternatives.

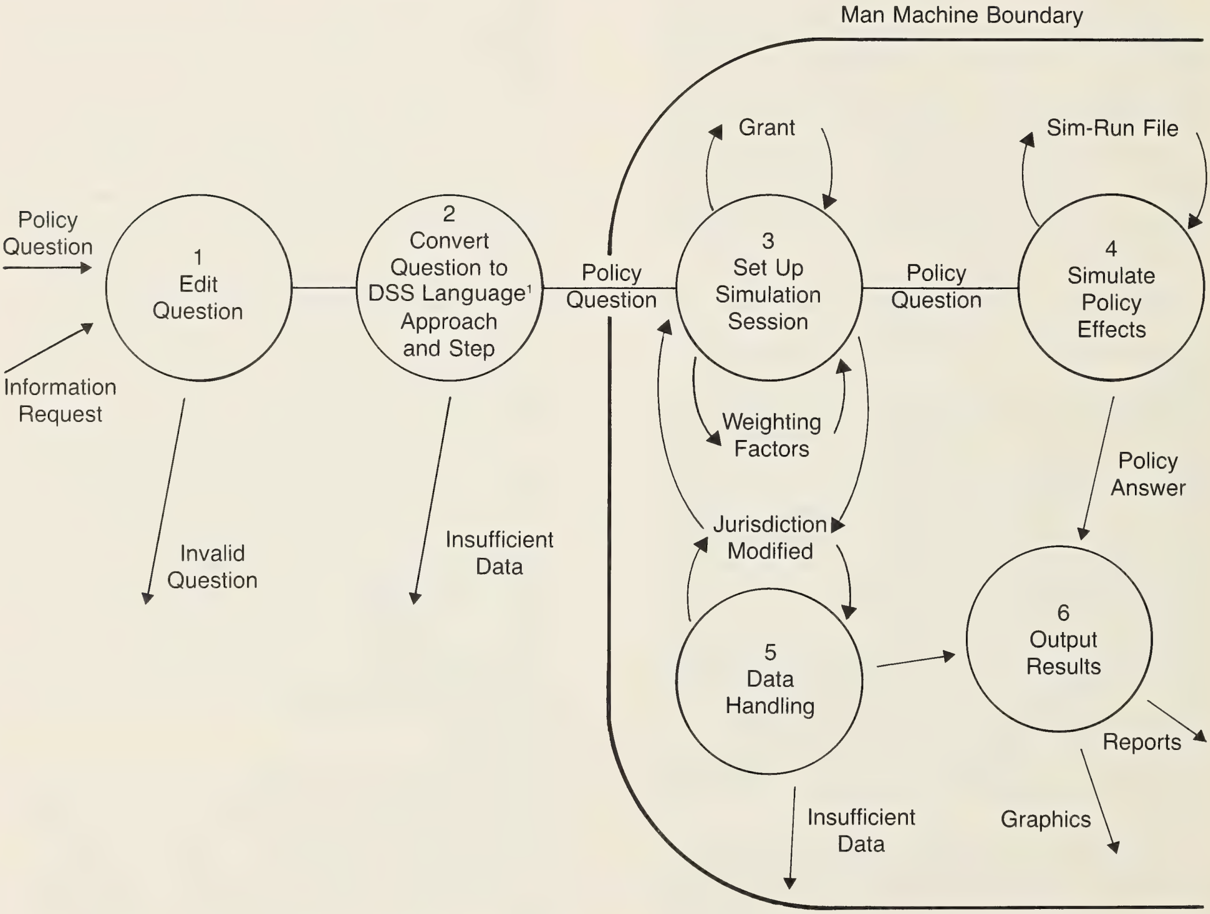
Implications

Now that a computerized school finance model has been developed, all 40 current provincial grants can be modified in any aspect to assess the impact of such change by jurisdiction over any time period.

The system enables a review of a multitude of financial changes, so financial policy makers have a much better opportunity to analyze the impact of each policy alternative. For example, if the provincial government is interested in the effect of a 10% per pupil per year increase in funding the elementary component of SFPF grants, the permutations of such an increase can be developed with consideration of any anticipated enrolment profiles, including increased population, decreased population, fluctuating enrolments, relatively stable numbers, and changes in private school enrolments.

FIGURE X.1

The Conceptual Approach to School Finance Computer Simulation Model



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[1] DSS = Decision System Support/English Language Interface

FIGURE X.2

Conceptual Revenue Flow Model for Input to Financial Simulations

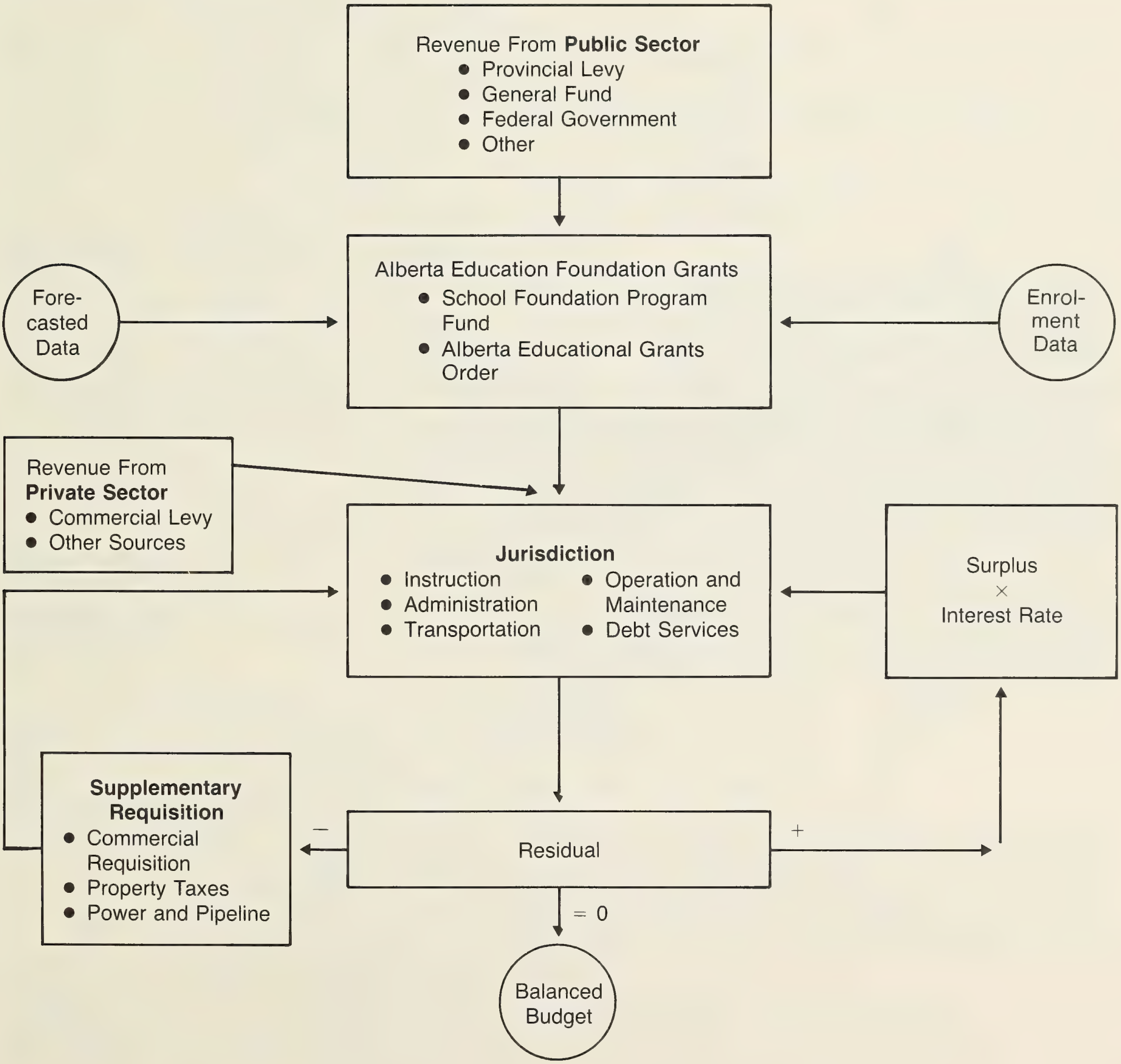
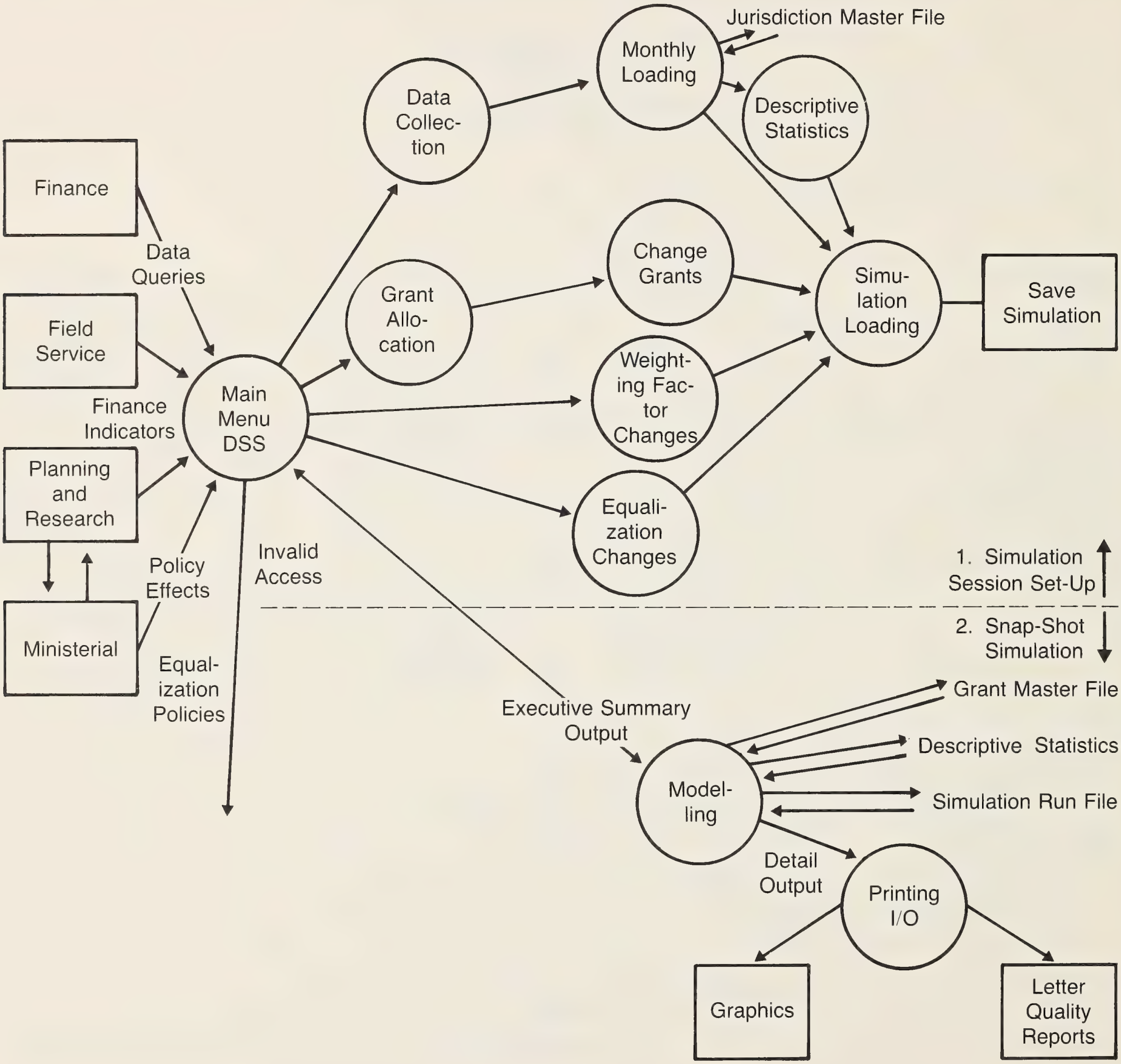


FIGURE X.3

Conceptual Data Flow Diagram for Input and Output, Financial Simulation Model



GLOSSARY

AISCA	Association of Independent Schools and Colleges of Alberta
alpha Level	The degree to which an occurrence does not appear to be the result of happenstance.
ASTA	Alberta School Trustees Association
ATA	The Alberta Teachers' Association
BQRP	Building Quality Restoration Program — A program initiated in 1974 and continuing thereafter to provide school boards with grants equal to the amount of provincially approved costs up to a maximum of $20,000 per project to upgrade school facilities.
Category One Private Schools	Private schools listed by Alberta Education as approved by the province and therefore eligible for receipt of a portion (70% in 1980-81 and moving to 80% by 1982-83) of the SFPF per pupil grant. To qualify as a Category One Private School, the school must follow the provincial curriculum, employ certificated staff and be available for provincial inspection and testing.
DEG	Declining Enrolment Grant
Directors' Council	An internal discussion and administrative decision-making body of Alberta Education, including the Deputy Minister, the two Associate Deputy Ministers, and the Directors of the several branches of the Department.
ECS	Early Childhood Services
EOF	Educational Opportunities Fund
Equalized Assessment	An assessment based on live assessment (*q.v.*) but determined by the province's Assessment Equalization Board in order to establish comparability through reflecting reasonably current property values and construction costs among municipalities which have not made live assessment valuations within the same year.
ESCE	Edmonton Society for Christian Education
ESL	English as a Second Language

ESR Form	Educational Staff Record — A computerized form updated annually by teachers in order to provide a record of names, addresses, salaries, professional duties, experience and qualifications of the active teaching force.
Fiscal Equalization Grants	Grants established by Alberta Education to compensate for enrolment decline, isolation, smallness and a lower than·average local tax base. Such grants include SREG for school systems with low per pupil property assessment bases, DEG, SSAG, SJG, and location allowances for teachers in remote and isolated communities.
LDF	Learning Disabilities Fund — A source of grants for diagnosis of difficulties and prescription of corrective programs for all school children, based on the elementary enrolment for a school board.
Live Assessment	Taxable assessment used by a municipality to determine the taxes to be paid by a property owner. The assessment is based on a valuation of property and construction costs. The date of valuation varies by as much as three years among different municipalities, so live assessments are not necessarily comparable from place to place. See Equalized Assessment.
Management Information System	Alberta Education's data compilation and reporting system for computerized processing of information on staff, students, schools, and offices of school boards, including financial records.
Null Hypothesis of Random Change	The hypothesis that the observed effects would not have occurred by chance.
PAB	Program Accounting Budget System
Pearson Product-Moment Correlation	Test of the strength of the relationship between two or more variables.
PPBES	Planning, Programming, Budgeting Evaluation System
PSOG	Private School Opening Grant
Q-factor Analysis	Modified factor analysis
SFPF	School Foundation Program Fund
SJG	Small Jurisdiction Grant
SREG	Supplementary Requisition Equalization Grant

SSAG	Small School Assistance Grant
Supplementary Requisition	Locally raised taxes on commercial, industrial and residential property to support public and separate schooling.
THUG	Teacher Housing Unit Grant
Tri-Partite Committee on Inservice Education	A committee established on recommendation from the province's Curriculum Policies Board; comprised of representatives from ASTA, ATA, and Alberta Education, the committee appraised the requirements and developed recommended procedures for successful inservice activities in support of carrying out new curricular programs.
Truncation	The pre-1972 practice of rounding off the enrolment provisions of the classroom unit (teaching position) grant and support staff grant so that no payment might be made for the remaining number of students above the last whole unit; e.g., the support staff grant was for seven positions per 1,000 students, but no part payment would be received for the remaining 200 students in a school system with 1,200 students. The impact on a small school system might work a hardship; the impact of "truncation" on larger systems was minimal.
Voucher System	An arrangement whereby education funding is distributed equally on an eligible per pupil basis to parents who transfer the funds to individual schools selected on the basis of parental choice, or whereby the schools bill a central authority for a per pupil share of the education budget on the basis of parent and/or student selection of the school.

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